XO-7

US Model
Canadian Model
AEP Model
UK Model
E Model

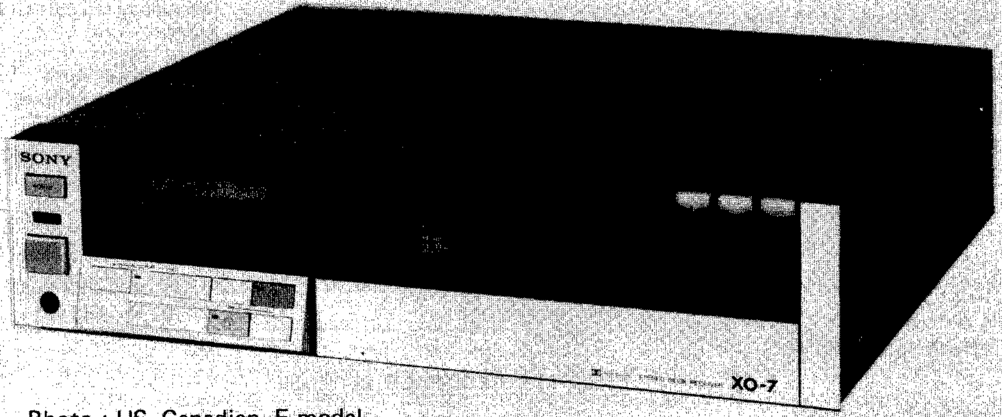

Photo : US, Canadian, E model

'Dolby' and the double-D symbol are the trade marks of Dolby Laboratories Licensing Corporation. Noise reduction system manufactured under license from Dolby Laboratories Licensing Corporation.

STEREO DECK RECEIVER

SPECIFICATIONS

AMPLIFIER SECTION

AUDIO POWER SPECIFICATIONS (US, Canadian model) POWER OUTPUT AND TOTAL HARMONIC DISTORTION With 8Ω loads, both channels driven, from 20–20,000Hz; rated 28W per channel minimum RMS power, with no more than 0.2% total harmonic distortion from 250mW to rated output.

Continuous RMS Power Output: (AEP, UK, E model)	28 W + 28 W (8 Ω, THD 0.1 % at 20 Hz – 20 kHz) 34 W + 34 W (8 Ω, THD 1.0 % at 1 kHz) 38 W + 38 W (8 Ω, THD 5.0 % at 1 kHz)

Inputs:

	Sensitivity	Impedance	S/N	Weighting network
PHONO (phono jacks)	2.5mV	47 kΩ	80dB	A
AUX/TV (phono jacks)	150mV	47 kΩ	100dB	A
MIC (phono jack)	1mV	600 Ω	–	–

Outputs:

REC OUT (phono jacks)	output voltage 150mV	impedance 10 kΩ
Headphones	Accepts headphones of 8 Ω or more	
SPEAKER	Accepts speakers of 8 – 16 Ω	

– Continued on page 2 –

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY SHADING AND MARK ⚠ ON THE SCHEMATIC DIAGRAMS, EXPLODED VIEWS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

ATTENTION AU COMPOSANT AYANT RAPPORT
À LA SÉCURITÉ!

LES COMPOSANTS IDENTIFIÉS PAR UNE TRAME ET UNE MARQUE ⚠ SUR LES DIAGRAMMES SCHÉMATIQUES, LES VUES EXPLOSEES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈCES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPLÉMENTS PUBLIÉS PAR SONY.

Tape Transport Mechanism Type	TCM-110V12

SONY®
SERVICE MANUAL

MICROFILM

Frequency Response: PHONO: RIAA curve ± 0.5 dB
AUX/TV: 10 Hz – 40 kHz

Loudness (att. 30dB): US, Canadian, AEP, UK model:
+7 dB at 100 Hz
E model:
+8 dB at 100 Hz

Tone Controls: BASS: ± 10 dB at 100 Hz
TREBLE: ± 10 dB at 10 kHz

FM TUNER SECTION

Tuning Range: 87.5 – 108.0 MHz

Antenna Terminals: 300 Ω balanced
75 Ω unbalanced

Intermediate Frequency: 10.7 MHz

Usable Sensitivity: US, Canadian, E model:
10.3 dBf, 1.8 μV
AEP, UK model:
2.0 μV, 11.2 dBf (IHF)

Sensitivity at 50dB Quieting: 18.2 dBf, 4.5 μV (mono)
47.5 dBf, 48.7 μV (stereo)

Signal-to-noise Ratio: 76 dB (mono)
72 dB (stereo)

Harmonic Distortion: 0.15 % (mono), 0.3 % (stereo) at 1 kHz

Separation: Better than 45 dB at 1 kHz

Selectivity: US, Canadian, E model:
55 dB
AEP, UK model:
70 dB

AM TUNER SECTION (US, Canadian, E model)

Tuning Range: US, Canadian model:
530 – 1,610 kHz (with the AM channel plan selector set to 10 kHz)
522 – 1,602 kHz (with the AM channel plan selector set to 9 kHz)
E model:
522 – 1,602 kHz

Antenna: Built-in ferrite bar antenna and external antenna terminal

Intermediate Frequency: 450 kHz

Usable Sensitivity: US, Canadian model:
200 μV/m (1,000 kHz), built-in antenna
100 μV (1,000 kHz), external antenna
E model:
200 μV/m (999 kHz), built-in antenna
100 μV (999 kHz), external antenna

Signal-to-noise Ratio: 55 dB

Harmonic Distortion: 0.5 % (50 mV/m, 400 Hz)

MW/LW TUNER SECTION (AEP, UK model)

Band	MW	LW
Tuning range	522–1,602 kHz	155–344 kHz (with the LW frequency selector set to LW1) 153–342 kHz (with the LW frequency selector set to LW2)
Antenna	Built-in ferrite bar antenna and external antenna terminal	
Intermediate Frequency	450 kHz	
Usable sensitivity built-in antenna	200 μV/m	450 μV/m
external antenna	100 μV	200 μV
Signal-to-noise ratio	55 dB	52 dB
Harmonic distortion	0.5 % (50 mV/m, 400 Hz)	

CASSETTE RECORDER SECTION

Recording System: 4-track 2-channel stereo

Signal-to-noise Ratio: DOLBY NR OFF
- With TYPE IV cassette (Sony METALLIC cassette)
  59 dB (NAB) at peak level
- With TYPE II cassette (Sony EHF or CD-α cassette)
  58 dB (NAB) at peak level

DOLBY NR ON
Improved by 5 dB at 1 kHz, 10 dB above 5 kHz

Frequency Response: DOLBY NR OFF
- With TYPE IV cassette (Sony METALLIC cassette)
  30 – 17,000 Hz
- With TYPE II cassette (Sony EHF or CD-α cassette)
  40 – 16,000 Hz
- With TYPE I cassette (Sony HFX or BHF cassette)
  40 – 14,000 Hz

Wow and Flutter: 0.05 % WRMS (NAB)

GENERAL

System: PLL quartz-locked digital synthesizer tuner
Direct coupled complementary symmetry power amplifier circuit (SEPP OCL)

Power Requirements: US, Canadian model:
120 V ac, 60 Hz
AEP model:
220 V ac, 50/60 Hz
UK model:
240 V ac, 50 Hz

E model:
110, 120, 220 or 240 V ac adjustable, 50/60 Hz

Memory back-up power: 3 V dc, two batteries, IEC designation R6 (size AA)
Battery life: approx. 1 year with Sony SUM-3 (NS) New Super Batteries

Power Consumption: US, Canadian model: 110 W
AEP, E model: 75 W
UK model: 180 W

AC Outlet: US, Canadian model:
One unswitched, 250 W

Dimensions: Approx. 430 (w) x 105 (h) x 395 (d) mm
(17 (w) x 4¼ (h) x 15⅝ (d) inches)
including projecting parts and controls

Weight: Approx. 9.1 kg (20 lb 1 oz) net
Approx. 10.2 kg (22 lb 8 oz) in shipping carton

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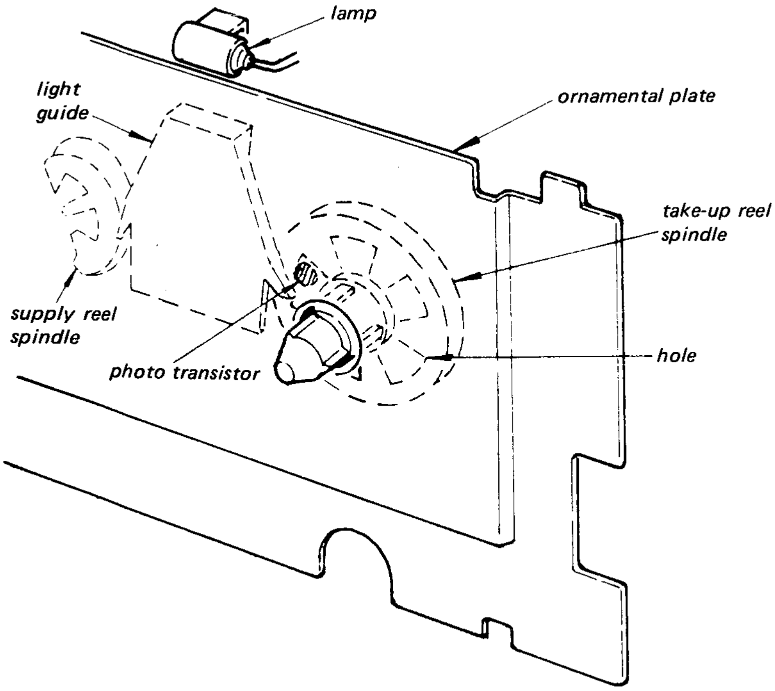
SECTION 1
OUTLINE

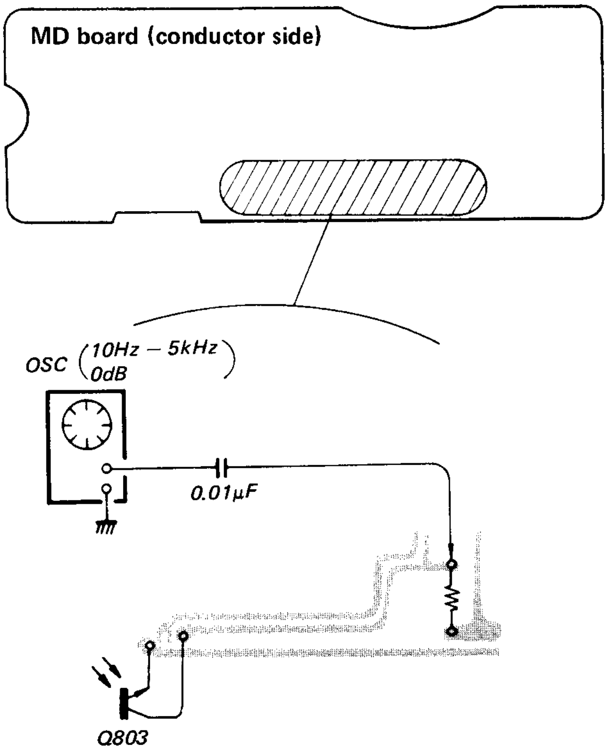
1-1. SERVICING NOTE

Shut-Off Detection and Precaution On Repairing

In this set, the shut-off detection is made optically. The take-up reel spindle has five holes. The light of the lamp received by the light guide is intermittently applied to the photo transistor by means of the rotation of the reel spindle. The pulse generated by the photo transistor Q803 is amplified by Q805 and is fed to the mechanism control IC801.

Accordingly, when it is necessary to repair the unit after removing the ornamental plate, connect an AF oscillator to the collector of Q803 as shown below, so as not to operate the shut-off mechanism.

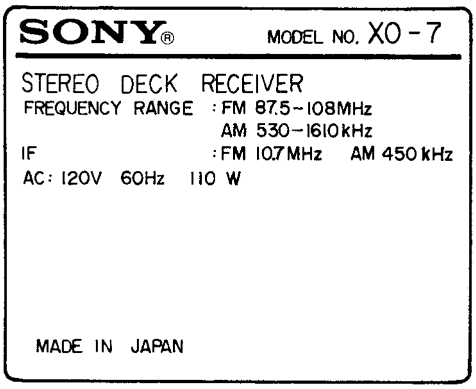

lamp
light guide
ornamental plate
take-up reel spindle
supply reel spindle
photo transistor
hole


MD board (conductor side)
OSC (10Hz – 5kHz 0dB)
0.01μF
Q803

1-2. MODEL IDENTIFICATION

– Specification Label –

US, Canadian model:

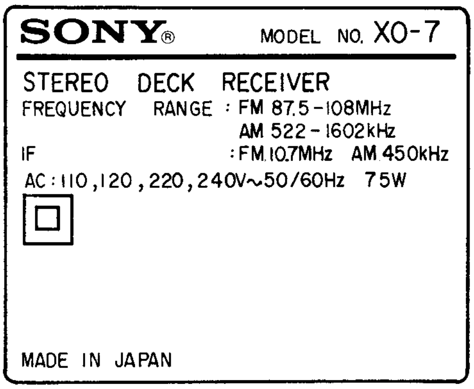


SONY® MODEL NO. XO-7

STEREO DECK RECEIVER
FREQUENCY RANGE : FM 87.5-108MHz
AM 530-1610kHz
IF : FM 10.7MHz AM 450kHz
AC: 120V 60Hz 110 W

MADE IN JAPAN

E model:

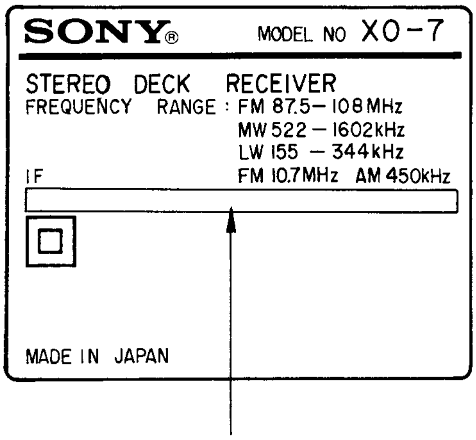


SONY® MODEL NO. XO-7

STEREO DECK RECEIVER
FREQUENCY RANGE : FM 87.5-108MHz
AM 522-1602kHz
IF : FM 10.7MHz AM 450kHz
AC: 110, 120, 220, 240V~50/60Hz 75W
⧈

MADE IN JAPAN

AEP, UK model:



SONY® MODEL NO XO-7

STEREO DECK RECEIVER
FREQUENCY RANGE : FM 87.5-108MHz
MW 522-1602kHz
LW 155-344kHz
IF FM 10.7MHz AM 450kHz
⧈

MADE IN JAPAN

AEP model: AC : 220V ~50/60Hz 75W
UK model: AC : 240V ~50Hz 180W

1-3. GENERAL DESCRIPTION

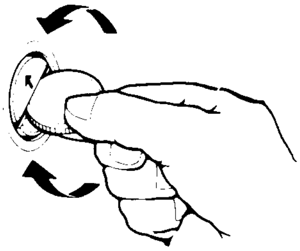
FEATURES

This stereo deck receiver includes in its compact cabinet a high-sensitivity FM/AM (US, Canadian, E model) FM/MW/LW (AEP, UK model) tuner, a high-power amplifier, and a high-quality cassette deck.

- The high power amplifier reproduces dynamic sounds with high fidelity and can drive two pairs of speaker systems.
- The quartz-locked digital frequency synthesizer tuner allows accurate and stable tuning with an electronic digital readout on the frequency display.
- Automatic, manual and memory preset tuning systems are available.
- Logic-controlled "feather-touch" cassette deck function buttons enable you to switch directly from any mode to another mode.
- The record muting button enables you to make a 4-second blank space between selections automatically.
- The automatic tape selector system detects the type of tape inserted and sets the equalization and bias current settings for optimum recording and playback.
- The Sony new automatic recording system sets the recording level according to the type of the tape to be used.
- The digital tape counter allows you to index your tapes and provides a guide to how much recording time is left.
- The Dolby NR (noise reduction) system reduces tape hiss and assures high quality recording and playback.

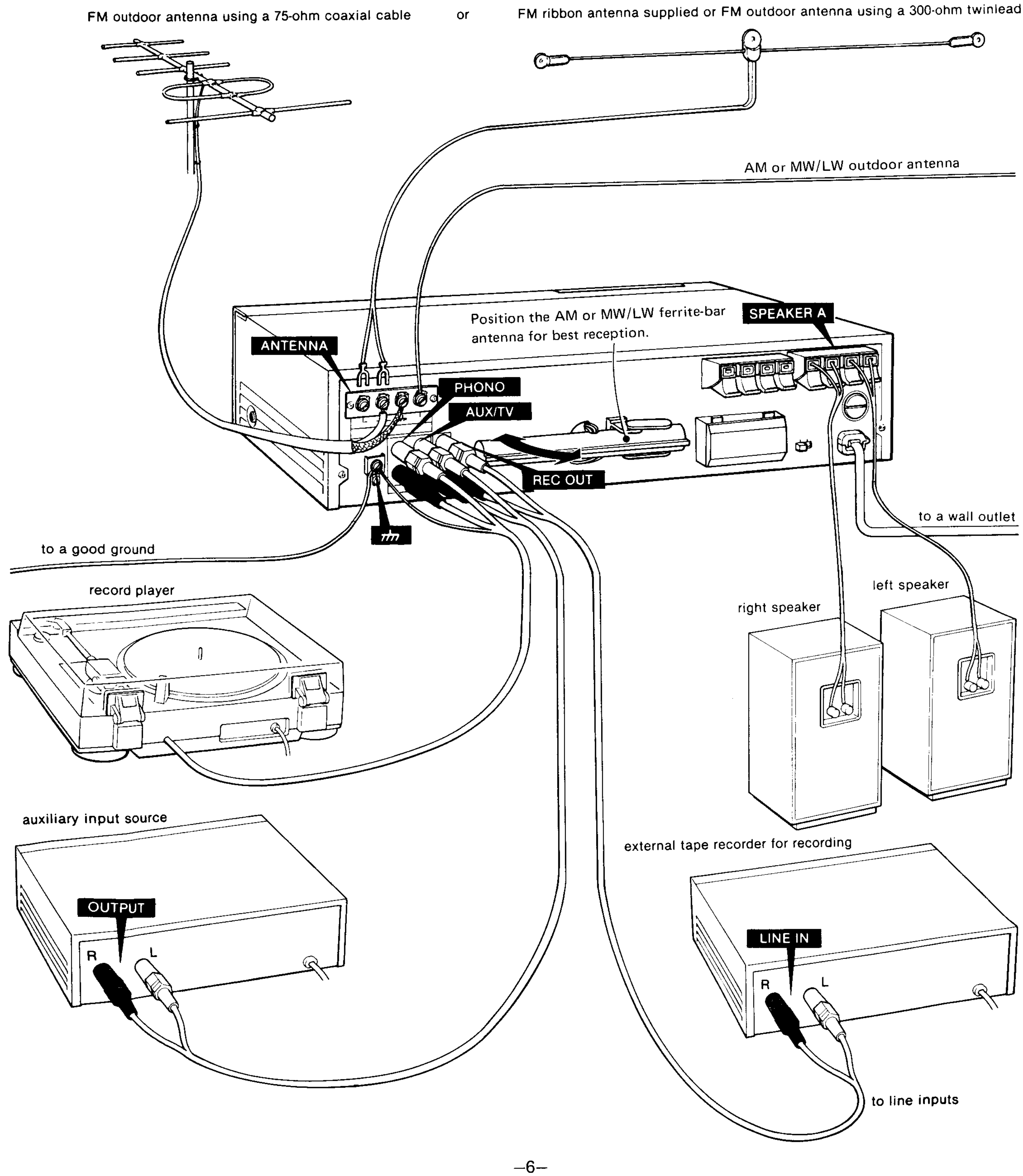
OPERATING VOLTAGE (E model)

The unit operates on either 110, 120, 220, or 240 V ac.
Before connecting the unit to the power source, check that the voltage selector located at the rear panel is correctly set for your local power supply.
If the selector must be reset, **disconnect the ac power cord** and turn the selector with a coin so that the arrow of the selector points to the proper voltage figure.



SYSTEM CONNECTIONS

CONNECTION DIAGRAM

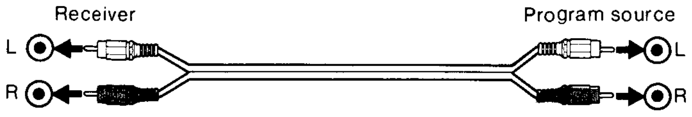

FM outdoor antenna using a 75-ohm coaxial cable
or
FM ribbon antenna supplied or FM outdoor antenna using a 300-ohm twinlead
AM or MW/LW outdoor antenna
Position the AM or MW/LW ferrite-bar antenna for best reception.
ANTENNA
SPEAKER A
PHONO
AUX/TV
REC OUT
to a good ground
to a wall outlet
record player
right speaker
left speaker
auxiliary input source
OUTPUT
R
L
external tape recorder for recording
LINE IN
R
L
to line inputs

CONNECTION NOTES

- The power cord should be connected last of all, first making sure that the POWER switch is turned off.
- The cable connectors should be fully inserted into the jacks.

A loose connection may cause hum and noise.

- Be sure to connect the red plug of a cable to the right [R] jack and the remaining one to the left [L].


Receiver
Program source
L
R
L
R

- Since there is a variety of cords—such as speaker cords, power cord, connecting cords—around the rear panel terminals, you should maintain a moderate separation between the bar antenna and the cords. This is because the receiver may produce a noise from the direct touch of the cords on the bar antenna.

SPEAKER CONNECTION

This set has provision for two pairs of speaker systems—system A and system B—you can use only speaker system A or the two systems together depending on the setting of the front panel SPEAKERS selector.

Speaker power capacity

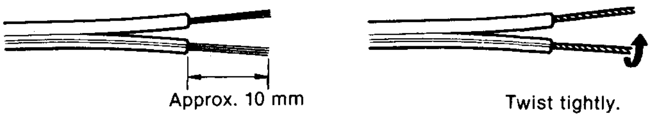
The receiver is rated at 28 watts minimum RMS per channel with an 8-ohm load from 20 to 20,000 Hz and may deliver an instantaneous peak power much greater than the rated power. Be sure to use speakers with adequate power handling capabilities. Always reduce the volume, when setting down or removing a tonearm or when tuning across the band. Speaker damage may result if these precautions are not observed.

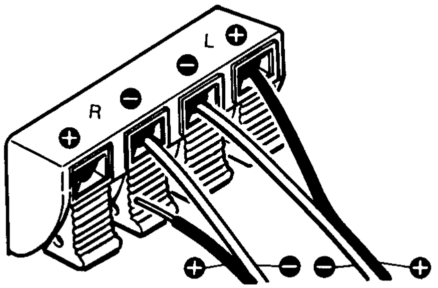
Speaker impedance

This receiver is designed to work best with speakers having nominal impedance ratings from 8 to 16 ohms.

Connections

Connect each speaker to the corresponding speaker terminals, i.e. right speaker to the R terminals and left speaker to L. Note that the colored or marked lead of a speaker cord goes to the ⊕ terminal and the other lead to the ⊖ terminal.


Approx. 10 mm
Twist tightly.

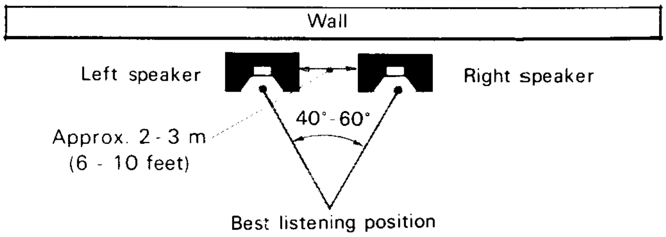


Depress the terminal button and fully insert the wires into the slot.
Then release the button.

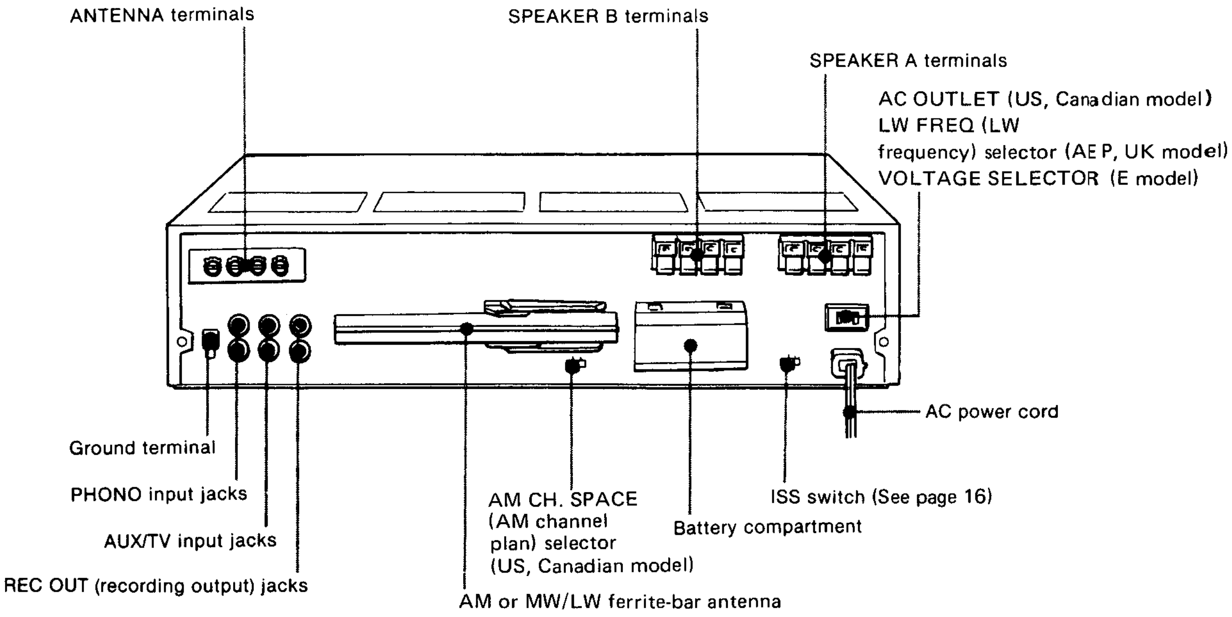
Caution: Check that no loose strand of the wire shorts across the terminals.

SPEAKER ARRANGEMENT

Better stereo sound will result if the listening room has drapes and carpeting. Locating the speakers against a wall will increase the bass sound, with even greater bass effect from corner locations.


Wall
Left speaker
Right speaker
40°-60°
Approx. 2-3 m
(6 - 10 feet)
Best listening position

In any case, experiment with different speaker arrangements and listening locations until you find the setup that pleases you most.


ANTENNA terminals
SPEAKER B terminals
SPEAKER A terminals
AC OUTLET (US, Canadian model)
LW FREQ (LW frequency) selector (AEP, UK model)
VOLTAGE SELECTOR (E model)
AC power cord
Ground terminal
PHONO input jacks
AUX/TV input jacks
REC OUT (recording output) jacks
AM CH. SPACE (AM channel plan) selector (US, Canadian model)
AM or MW/LW ferrite-bar antenna
Battery compartment
ISS switch (See page 16)

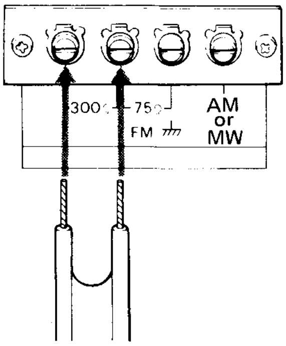
ANTENNA CONNECTION

FM antenna

The supplied FM ribbon antenna can be used until you install an outdoor FM antenna. Connect the ribbon antenna to the FM 300 Ω terminals and extend it fully. Adjust the direction of the antenna for optimum reception and fasten the ends to a wall, etc., using thumbtacks or adhesive tape.

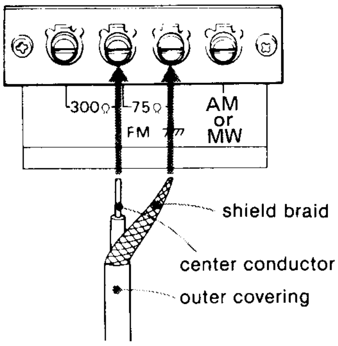
The quality of received signals will be greatly improved with a suitable FM antenna. For further information about FM antennas, see page 19.

300 ohm twin lead connection



300 ohm twin lead

75 ohm coaxial cable connection



75 ohm coaxial cable

AM antenna (US, Canadian, E model)

In most areas, the built-in ferrite bar antenna will provide satisfactory AM reception. In difficult reception areas, it may be neccessary to connect a length of wire 5 to 15 meters (20 to 50 feet) long to the AM or MW ANTENNA terminal. Extend this out of doors if possible, keeping as much of the antenna horizontal as possible.

MW and LW antenna (AEP, UK model)

In most areas, the built-in ferrite bar antenna will provide satisfactory MW and LW reception. In difficult reception areas, it may be necessary to connect a length of wire 10 to 20 meters (30 to 60 feet) long to the AM ANTENNA terminal. Extend this out of doors if possible, keeping as much of the antenna horizontal as possible.

LW wire broadcasting connection (for Switzerland only)

Connect the LW wire broadcasting cable to the AM ANTENNA terminal.

GROUND CONNECTION

A common terminal is used for outdoor antenna and record player groundings. Use this ground terminal [⏚] for lightning protection or preventing hum.

POWER CONNECTION

The power cord should be connected last of all.

Before making any form of power connection, make sure the POWER switch is released (OFF).

AC OUTLET (US, Canadian model)

The receptacle on the rear panel provides a convenient ac power source for other audio components. This UNSWITCHED outlet is not controlled by the front panel POWER switch. An audio component whose power consumption is under 250 watts can be connected to this outlet.

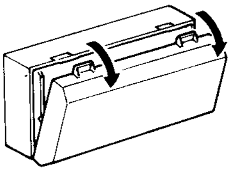
Note: Do not connect electrical home appliances such as an electric iron, fan, TV or other high-wattage equipment to this outlet.

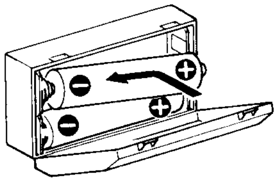
MEMORY BACK-UP BATTERIES

Battery installation

To retain the frequencies memorized on the station preset buttons while the receiver is turned off, install two batteries in the battery compartment on the rear as follows.

Open the battery compartment lid, install two batteries, size AA (IEC designation R6), with the correct polarity as indicated inside the compartment, then close the lid.





The flat sides of the batteries press against the springs.

Battery life

About one year of operation can be expected when using Sony SUM-3(NS) New Super Batteries. Be sure to replace the batteries once a year to avoid damage from leaking batteries.

NOTE ABOUT THE AM CHANNEL PLAN SELECTOR (US, Canadian model)

This receiver has a two-position AM channel plan selector [AM CH. SPACE] on the rear. To tune in AM stations correctly, the selector should be correctly set according to the AM frequency allocation system of your country.

10 kHz: for countries where the frequencies are allocated at intervals of 10 kHz, for example, the US, Canadian model.

9 kHz: for countries where the frequencies are allocated at intervals of 9 kHz.

This selector is factory preset at 10 kHz. If the AM frequencies are allocated at intervals of 9 kHz in your country, the selector should be set to 9 kHz. **Be sure to turn off the power before changing the position on the selector.**

Note: If the selector is set incorrectly, you cannot tune in AM stations properly.

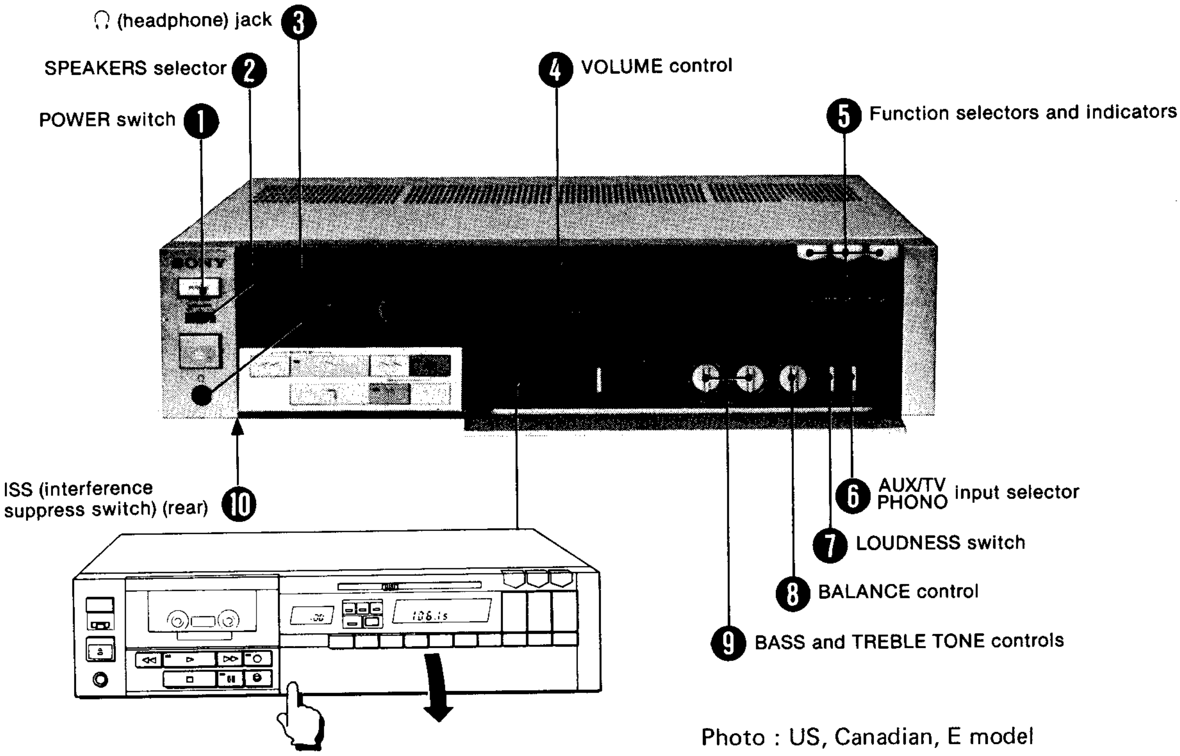
NOTE ABOUT THE LW FREQUENCY SELECTOR (AEP, UK model)

This receiver has a two-position LW FREQ (frequency) selector on the rear.

The selector is factory preset at LW_1 (155 – 344 kHz). If the LW frequency allocation is changed by the European Broadcasting Union (EBU), the selector should be set to LW_2 (153 – 342 kHz). Be sure to turn off the power before changing the position of the selector.

LOCATION AND FUNCTION OF CONTROLS

Control section


∩ (headphone) jack ❸
SPEAKERS selector ❷
POWER switch ❶
❹ VOLUME control
❺ Function selectors and indicators
ISS (interference suppress switch) (rear) ❿
❻ AUX/TV PHONO input selector
❼ LOUDNESS switch
❽ BALANCE control
❾ BASS and TREBLE TONE controls

Push here to open the cover.

Photo : US, Canadian, E model

❶ POWER switch
Depress to turn on the power. To turn off, press the switch again.

❷ SPEAKERS selector
OFF: to cut off the speaker sound or to monitor through the headphones.
A: to drive speaker system A (connected to the SPEAKER A terminals).
A + B: to drive both speaker systems A and B. If only one speaker system is connected with the selector in this position, no sound will be heard, because the A and B terminals are connected in series.

❸ ∩ (headphone) jack
Accepts any stereo headphones. For private listening, set the SPEAKERS selector to OFF. The headphone volume can be adjusted with the VOLUME control.

❹ VOLUME control
Slide to the right for more volume.

❺ Function selectors and indicators
Select the desired program source. The indicator of the selector in use illuminates.
TAPE: for playing back the built-in cassette deck or for using a microphone.
TUNER: for broadcasting programs received by the built-in tuner.
PHONO (AUX/TV): for record playing (connected to PHONO inputs) or for auxiliary source programs (connected to AUX/TV inputs).

❻ AUX/TV PHONO input selector
For record playing, keep this selector released (⊓ PHONO).
For auxiliary source programs, depress the selector (⊐ AUX/TV).

❼ LOUDNESS switch
Normally keep this switch released (⊓ OFF). When listening to program sources at a low volume, depress the switch (⊐ ON).
The loudness control compensates for the human ear's reduced response to very low frequency sound at low volume levels, and provides an apparently uniform response at these levels.
The effect on this control gradually decreases as the volume increases.

❽ BALANCE control
Regulates the sound balance between right and left channels for optimum stereo effect. Clockwise rotation (to R) decreases the left-channel sound, and vice versa.
Normally set the control to the center position.

❾ BASS and TREBLE TONE controls
Adjust the tone quality of the reproduced sound. Turn clockwise (to +) for more bass or treble and counterclockwise (to –) for less.

❿ ISS (interference suppress switch) (rear) (US, Canadian, E model)
Used for AM program recording. See page 16.

❿ ISS (interference suppress switch) (rear) (AEP, UK model)
Used for MW or LW program recording. See page 16.

Tuner section

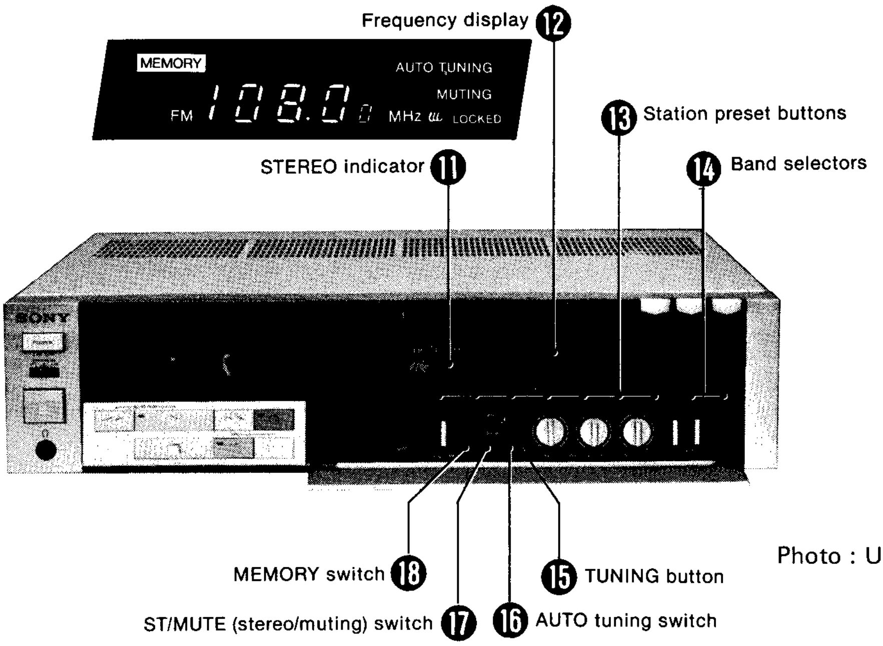


Photo : US, Canadian, E model

⑪ STEREO indicator
Lights up when an FM stereo program of sufficient signal strength is tuned in with the ST/MUTE switch depressed.

⑫ Frequency display
The frequency being tuned is displayed digitally.
The following indicators also illuminate.
MEMORY: illuminates for a few seconds when the MEMORY switch is pressed, indicating that the memory circuit is standing by.
AUTO TUNING: illuminates when the AUTO tuning switch is depressed.
MUTING: illuminates when the ST/MUTE switch is depressed.
LOCKED: illuminates when a signal is tuned in and locked.

⑬ Station preset buttons
To call up a pre-memorized station, press the appropriate button.

⑭ Band selectors (US, Canadian, E model)
Press the desired band button: FM or AM.
The selected band will be indicated in the frequency display.

⑭ Band selectors (AEP, UK model)
Press the desired band button: FM, MW or LW.
The selected band will be indicated in the frequency display.

⑮ TUNING button
Press either side of the button to change the received frequency: press the right side (+) to go to a higher frequency and the left (–) to go to a lower.
During manual tuning:
To change the frequency continuously until the desired frequency is received, keep the TUNING button depressed. The frequency figures will change rapidly. To change the frequency one step (0.05 MHz steps in the FM band, for example) at a time, press and immediately release the button.
During automatic tuning:
Press momentarily to start automatic frequency scanning. Scanning will stop when a signal is received. To continue scanning, press the button again.

⑯ AUTO tuning switch
Depress for automatic tuning. "AUTO TUNING" will appear on the frequency display. Now when the TUNING button is pressed, the receiver will scan the selected band until a signal is received.

⑰ ST/MUTE (stereo/muting) switch
Normally keep this switch depressed. "MUTING" appears on the frequency display and when tuning from station to station during manual tuning, interstation noise is eliminated. During FM reception, when a stereo signal of sufficient strength is received, the receiver operates in the stereo mode, and the STEREO indicator will illuminate. If the signal changes to mono, the receiver will be switched to the mono mode automatically.
When very weak stations are to be tuned in, or when an FM program is too noisy, press to release the switch. This will reduce the noise and enable you to receive the weak station, although the stereo feature is sacrificed. When this switch is released, keep the volume down to avoid possible speaker damage from interstation noise.

⑱ MEMORY switch
Depress to operate the memory circuit. "MEMORY" will appear on the frequency display for a few seconds, indicating that the memory circuit is standing by.

Cassette deck section

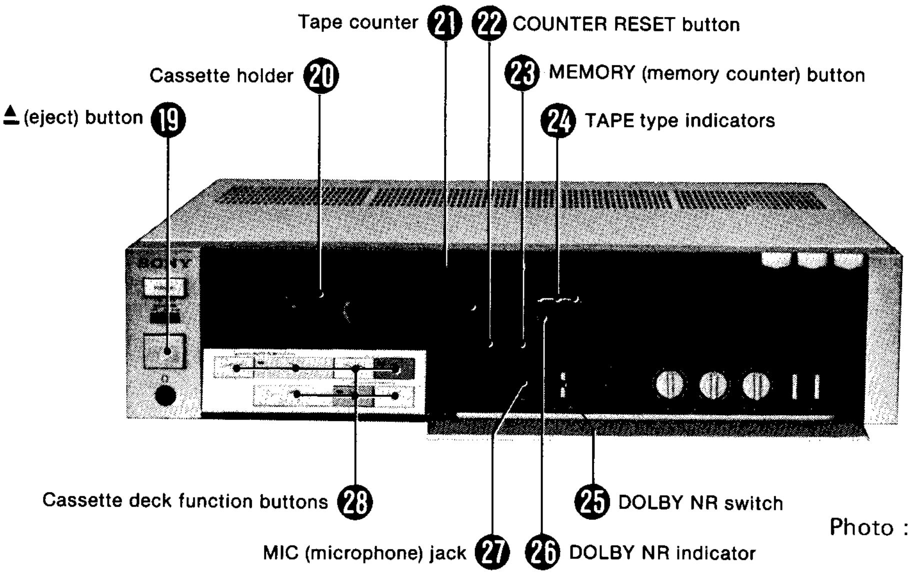


Photo : US, Canadian, E model

⑲ ≜ (eject) button
Press this button to open the cassette holder.

⑳ Cassette holder

㉑ Tape counter
Shows the tape running time. See page 20.

㉒ COUNTER RESET button
Press this button to reset the tape counter to ".00".

㉓ MEMORY (memory counter) button
Used for memory stop and memory play functions. See page 20.

㉔ TAPE type indicators
The type of the tape being used is automatically detected by the automatic tape selector system and the corresponding indicator lights.

㉕ DOLBY NR switch
To record with the Dolby NR* (Noise Reduction) process, depress this switch (▫ ON). To record without the Dolby NR process, press again and release this switch (⊓ OFF).
When playing back, set this switch to the same position used in recording.

㉖ DOLBY NR indicator
Lights when the DOLBY NR switch is depressed (▫ ON).

㉗ MIC (microphone) jack
Accepts any low impedance microphone equipped with a phone plug for microphone recording.

㉘ Cassette deck function buttons
It is possible to switch directly from one mode to another. The indicators light when the cassette deck is in the forward, record or pause mode.

◀◀ (rewind) button: Press this button to rewind the tape.
▶ (forward) button: Press this button to play the tape back. To record, press this button while holding the ● button down.
▶▶ (fast-forward) button: Press this button to advance the tape rapidly.
● (record) button: Press this button together with the ▶ button to start recording.
■ (stop) button: To stop the tape, press this button.
❙❙ (pause) button: Press this button to stop the tape for a moment during recording and playback. To restart, press the button again. This button is also used to release the record muting mode.
○ (record muting) button: Press this button to eliminate unwanted material and to insert a blank space during recording.

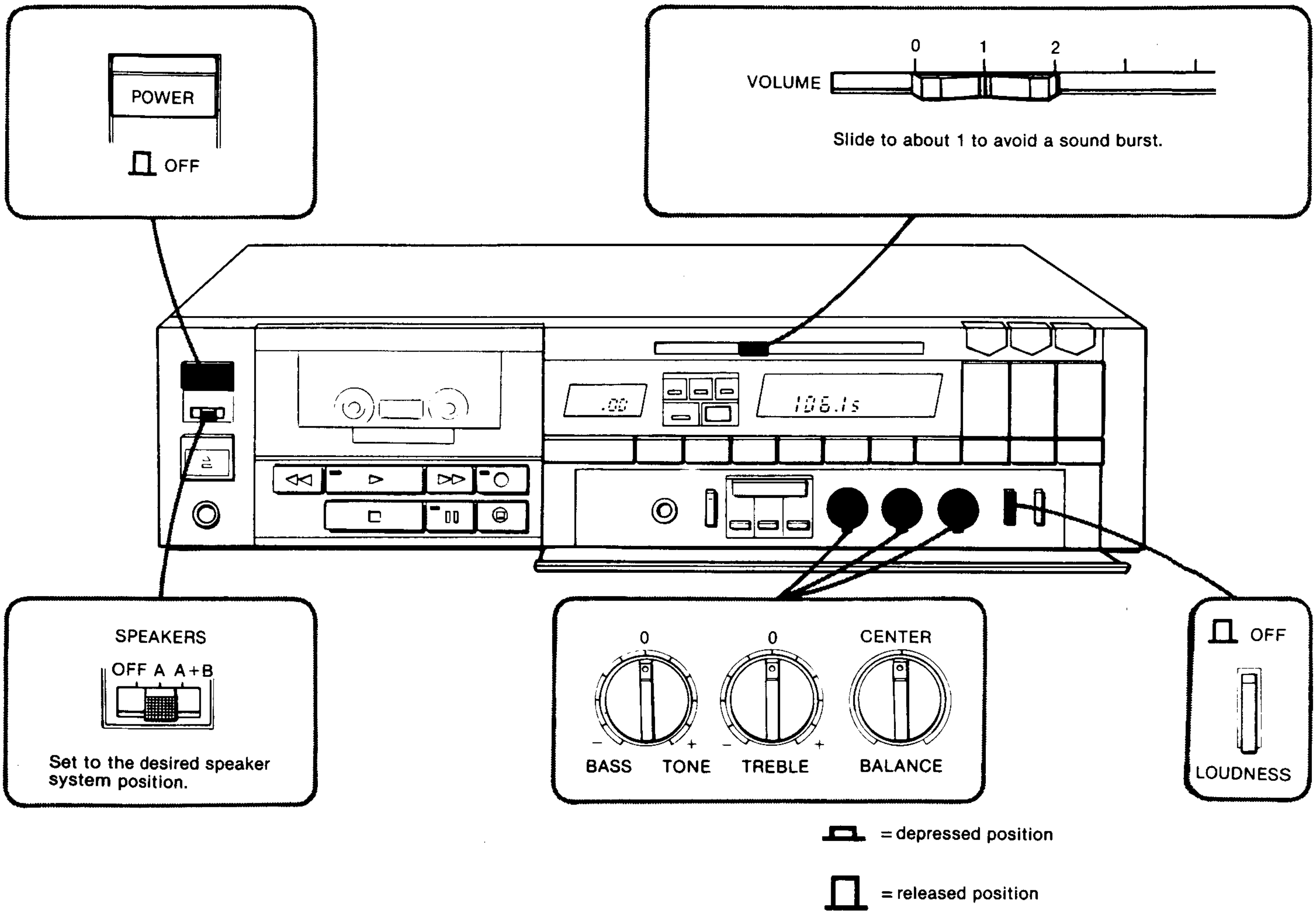
---

* The Dolby NR system reduces tape hiss and improves the signal-to-noise ratio. During recording, low-level high-frequency signals, which tend to be obscured by tape hiss, are boosted so that they are audible above any tape noise. When these signals are played back, the level is lowered to the original input level so that the level of any tape noise is reduced to the same extent.

"Dolby" and the double-D symbol are trade marks of the Dolby Laboratories. Noise reduction system manufactured under license from Dolby Laboratories.

PRELIMINARY OPERATION

Before proceeding with any operation, set the controls as shown below so that it will only be necessary to play the desired program source and to adjust the volume to your preference.


POWER
OFF
VOLUME
0
1
2
.00
106.1s
SPEAKERS
OFF A A+B
0
0
CENTER
–
+
–
+
BASS
TONE
TREBLE
BALANCE
OFF
LOUDNESS
= depressed position
= released position

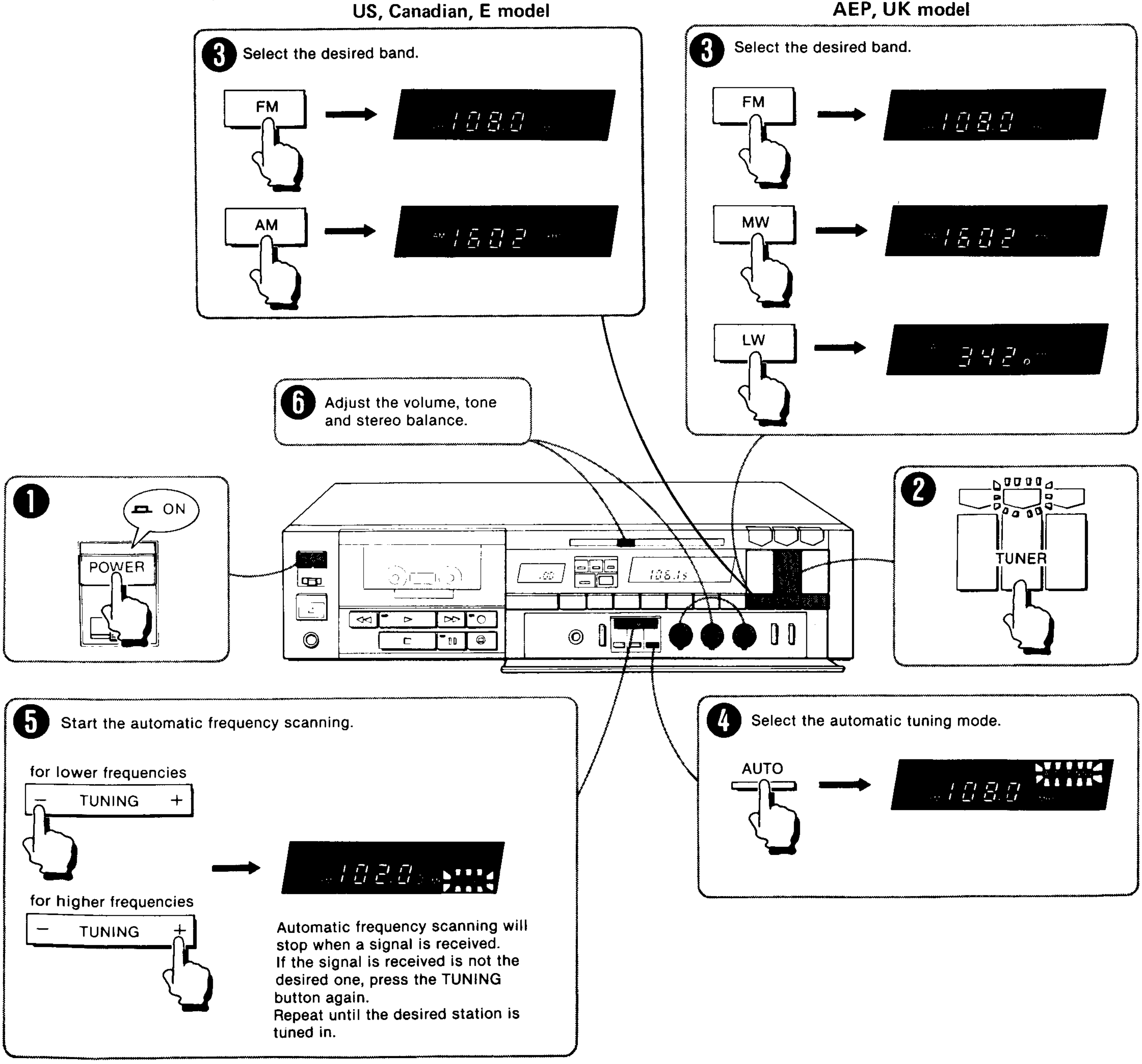
Slide to about 1 to avoid a sound burst.

Set to the desired speaker system position.

AUTOMATIC TUNING

This tuning system is convenient for receiving a station whose frequency has not been memorized, or to see quickly what kind of programs are on the air.

Follow the numbered sequence.


US, Canadian, E model

AEP, UK model

❶

❷

❸ Select the desired band.

❹ Select the automatic tuning mode.

❺ Start the automatic frequency scanning.

for lower frequencies

for higher frequencies

Automatic frequency scanning will stop when a signal is received.
If the signal is received is not the desired one, press the TUNING button again.
Repeat until the desired station is tuned in.

❻ Adjust the volume, tone and stereo balance.

If the signal strength is weak, the frequency display figures will not stop at the desired frequency. When this happens, adjust the antenna for optimum reception. If the signal strength is still too weak for automatic tuning, tune in the station as described in "MANUAL TUNING".

Note
If you keep the TUNING button depressed during automatic tuning, scanning will not stop at a signal.

MANUAL TUNING

This tuning system permits a step-by-step scanning and is helpful when the signal strength of the desired station is too weak for automatic tuning.

Follow the numbered sequence.

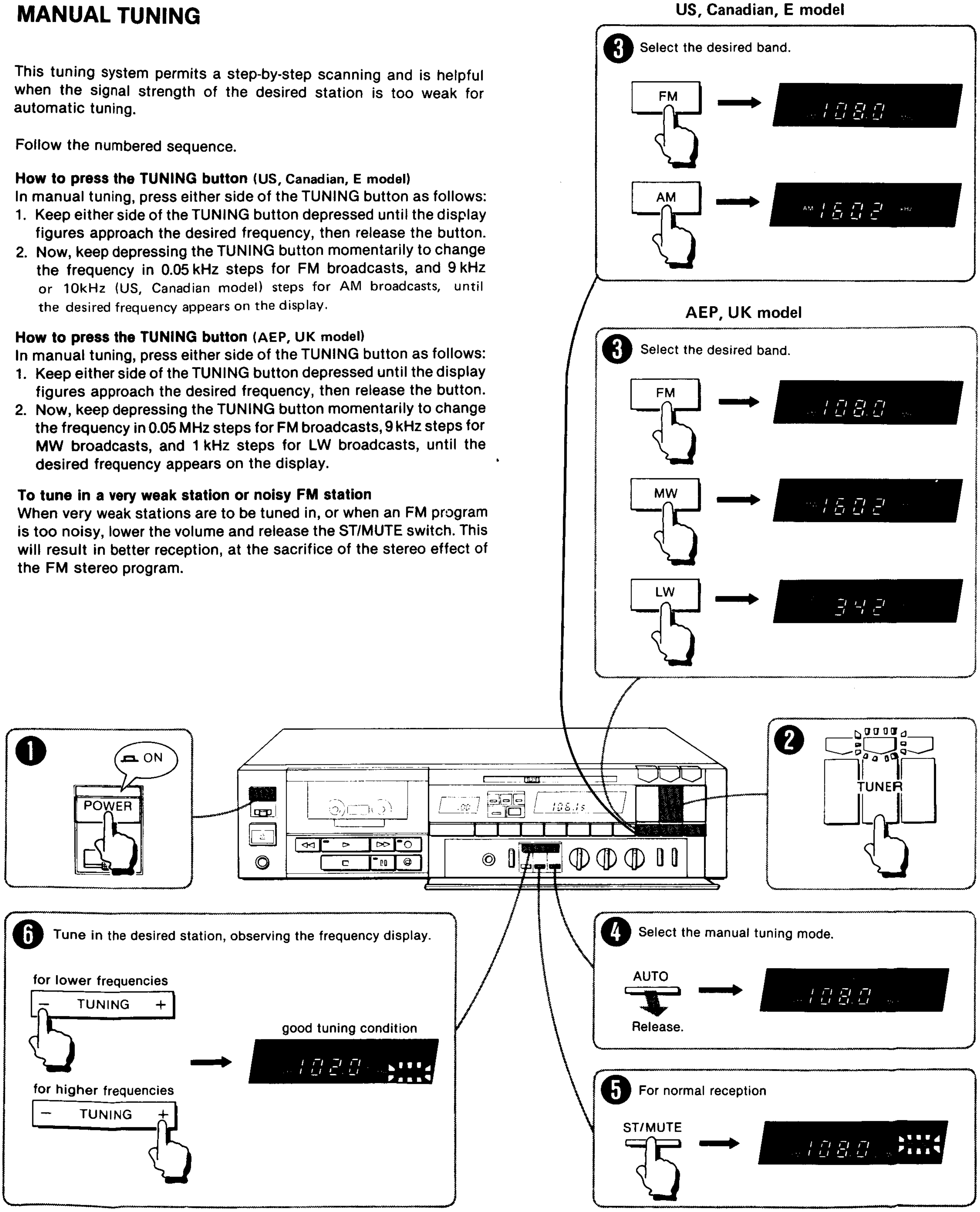
How to press the TUNING button (US, Canadian, E model)
In manual tuning, press either side of the TUNING button as follows:

1. Keep either side of the TUNING button depressed until the display figures approach the desired frequency, then release the button.
2. Now, keep depressing the TUNING button momentarily to change the frequency in 0.05 kHz steps for FM broadcasts, and 9 kHz or 10kHz (US, Canadian model) steps for AM broadcasts, until the desired frequency appears on the display.

How to press the TUNING button (AEP, UK model)
In manual tuning, press either side of the TUNING button as follows:

1. Keep either side of the TUNING button depressed until the display figures approach the desired frequency, then release the button.
2. Now, keep depressing the TUNING button momentarily to change the frequency in 0.05 MHz steps for FM broadcasts, 9 kHz steps for MW broadcasts, and 1 kHz steps for LW broadcasts, until the desired frequency appears on the display.

To tune in a very weak station or noisy FM station
When very weak stations are to be tuned in, or when an FM program is too noisy, lower the volume and release the ST/MUTE switch. This will result in better reception, at the sacrifice of the stereo effect of the FM stereo program.


US, Canadian, E model
3 Select the desired band.
FM
108.0
AM
AM 1602 kHz
AEP, UK model
3 Select the desired band.
FM
108.0
MW
1602
LW
342
1
ON
POWER
2
TUNER
6 Tune in the desired station, observing the frequency display.
for lower frequencies
– TUNING +
good tuning condition
102.0
for higher frequencies
– TUNING +
4 Select the manual tuning mode.
AUTO
Release.
108.0
5 For normal reception
ST/MUTE
108.0

MEMORY PRESET TUNING

US, Canadian, E model:

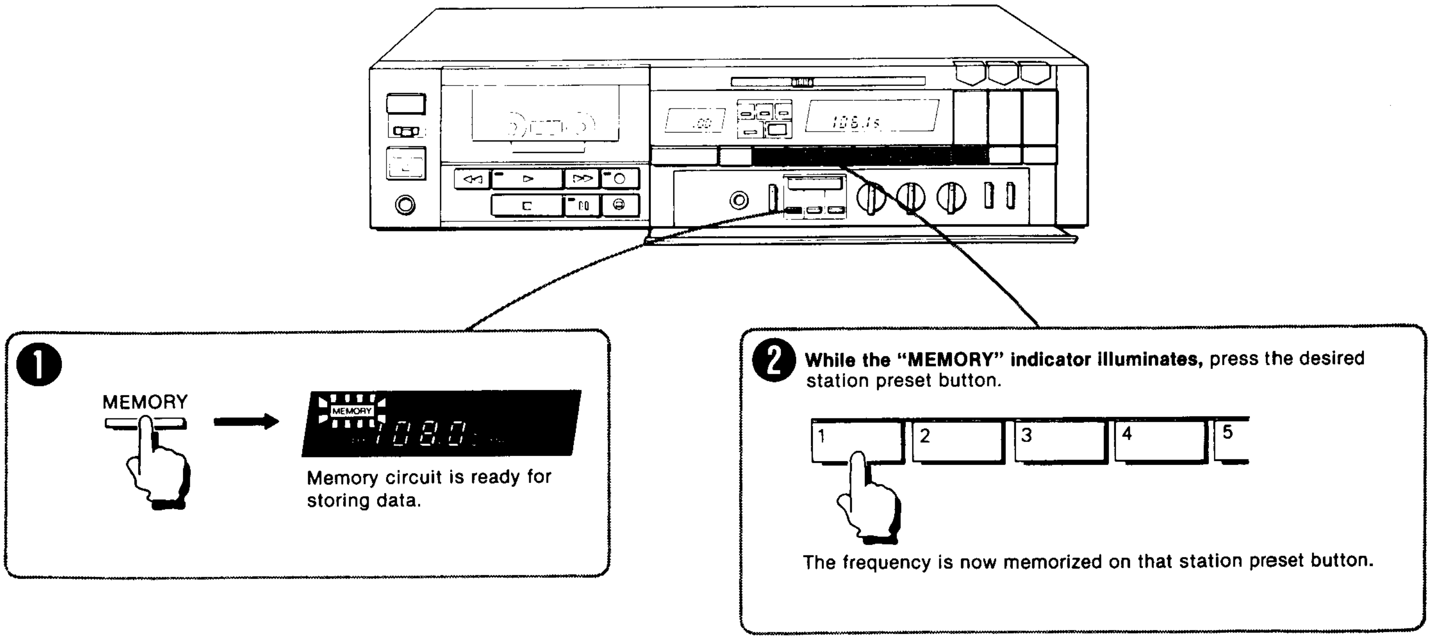
- Once you commit the frequencies to the memory, all you need do to select a desired station is press the appropriate button.
On each station preset button, you can memorize an FM and AM station. A total of 14 stations (7 FM and 7 AM stations) can be memorized.

AEP, UK model:

Once you commit the frequencies to the memory, all you need do to select a desired station is press the appropriate button.
On each station preset button, you can memorize an FM and MW station. A total of 12 stations (6 FM and 6 MW stations) can be memorized. LW stations cannot be memorized.

To memorize a frequency

1. Memorize all desired FM stations on the station preset buttons. After tuning in the frequency to be memorized by either automatic or manual tuning, follow the numbered sequence.



❶ Memory circuit is ready for storing data.

❷ **While the "MEMORY" indicator illuminates,** press the desired station preset button.

The frequency is now memorized on that station preset button.

Repeat these steps for each station preset button.

2. Memorize desired AM or MW stations following the same procedure as that for FM stations.

Notes

- "MEMORY" will go off automatically after a few seconds. When the indicator is off, the memory circuit does not operate and no frequency can be memorized. Press the MEMORY switch again to activate the memory circuit.
- If an FM and AM or MW station are memorized on the same preset button in reverse order, that is, first an AM or MW station then an FM station, the AM or MW station cannot be retained in the memory circuit.
- The previous memory will be erased when a new frequency on the same band is committed to the memory of the same button.
An erasure cannot be made without a new input.

To receive a memorized station

Simply press the station preset button on which the station you want to tune in is memorized.

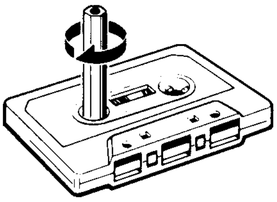
To change a memorized FM station

When you commit a new FM station frequency to the memory, the AM or MW station which is previously memorized on the same station preset button is automatically erased. Be sure to rememorize the AM or MW station after you have memorized a new FM station.

RECORDING

NOTE ON CASSETTE INSERTION

Before inserting a cassette, take up any slack in the tape to prevent it from becoming tangled around the capstan.

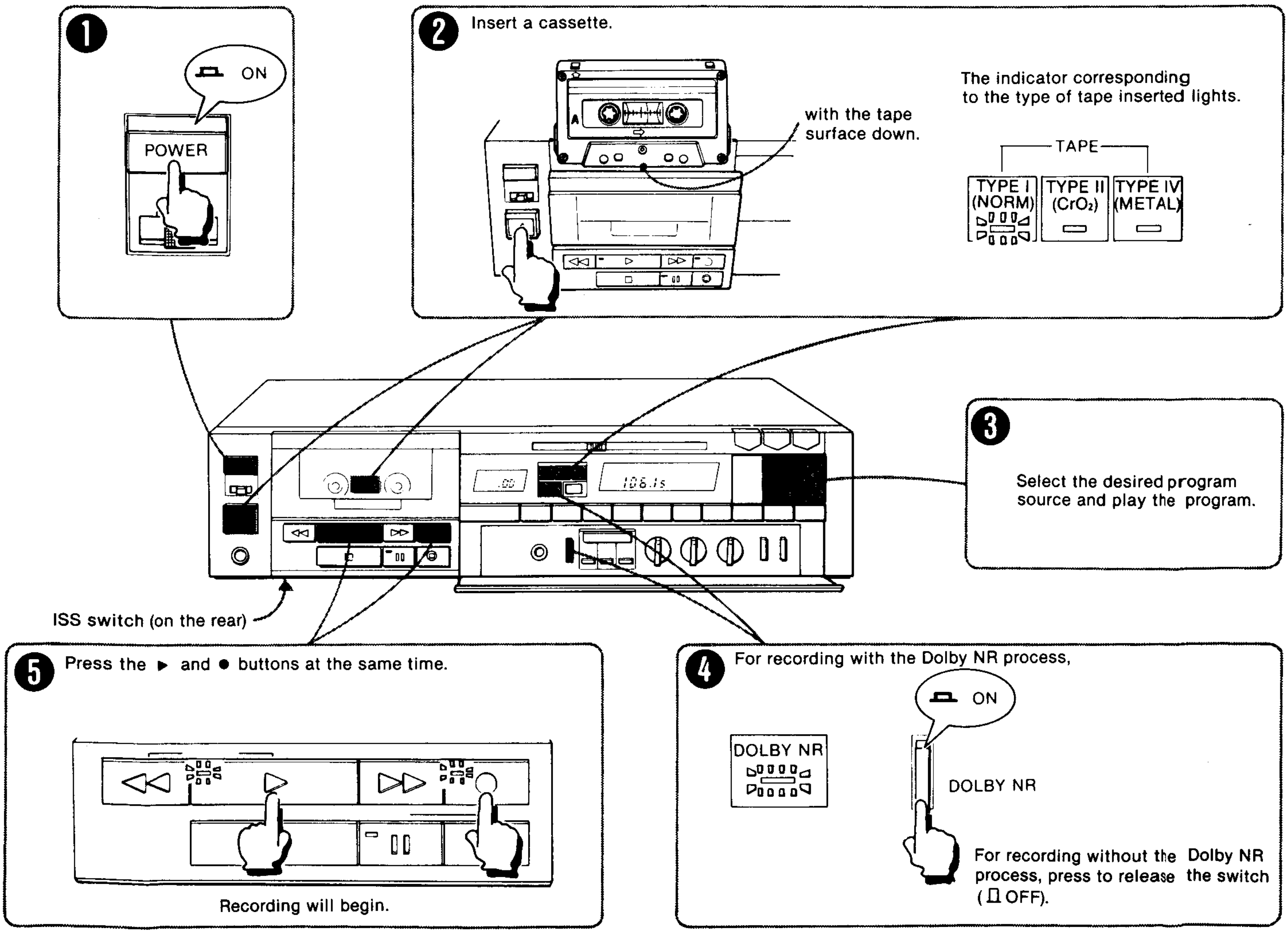


NOTES ON CASSETTE DECK OPERATION

- When the POWER switch is depressed, the **II** button's indicator will flicker for about 4 seconds. While the indicator is flickering, the cassette deck function buttons do not operate.
- The cassette deck function buttons cannot be activated if there is no cassette in the cassette holder.

RECORDING PROCEDURE

Follow the numbered sequence.



❷ Insert a cassette.

with the tape surface down.

The indicator corresponding to the type of tape inserted lights.

❸ Select the desired program source and play the program.

❹ For recording with the Dolby NR process,

For recording without the Dolby NR process, press to release the switch (⊓ OFF).

❺ Press the ▶ and ● buttons at the same time.

Recording will begin.

- No recording level adjustment is necessary with the Sony new automatic recording system.[2]

The recording level is not affected by the VOLUME, TONE, or BALANCE control, so you can listen to the program at any volume and with any tone adjustments you want while recording.

- The type of tape to be used is automatically detected by the automatic tape selector system.[1]
- To stop the recording, press the ■ button.

At the end of the tape, the tape stops and the pressed buttons are automatically disengaged.

ISS (Interference suppress switch) (US, Canadian, E model)

If interference is encountered while recording AM programs, use the ISS switch on the rear to suppress the interference. Slide the switch to 1 or 2 position, depending on which best reduces the noise.

ISS (Interference suppress switch) (AEP, UK model)

If interference is encountered while recording MW or LW programs, use the ISS switch on the rear to suppress the interference. Slide the switch to 1, 2 or 3 position, depending on which best reduces the noise.

MORE ACCURATE RECORDING STARTS

You can use the ❚❚ button to start recording more accurately than is possible when recording is started by pressing both the ● and ▶ buttons.

❶ After completing step ❹ in the chart on page 16, press the ❚❚ button.

❷ Hold the ● button down and press the ▶ button.

❸ At the moment you wish to start recording, you need only press the ❚❚ button again.

MICROPHONE RECORDING

When you plug a microphone into the MIC jack and depress the TAPE button in step ❸ in the chart on page 16, you can record monaural microphone sound.

Notes

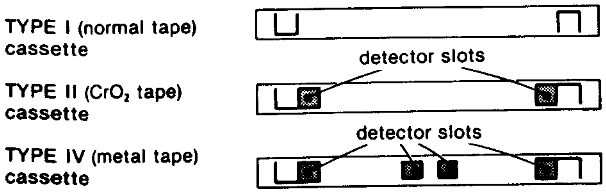
- If your microphone is equipped with a miniplug, use a miniplug to phone plug adaptor, such as the Sony PC-2A (optional).
- If the microphone is too near the speaker during microphone recording, a howling effect (whistle-like sound) may occur.

If this happens, move or point the microphone away from the speaker or turn down the sound volume until the howling stops.

*1 Automatic tape selector system

This automatic tape selector system detects the detector slot of a cassette and automatically sets the correct equalization characteristics and optimum bias current for recording and playback.

The appropriate tape-type indicator illuminates.


TYPE I (normal tape) cassette
TYPE II (CrO₂ tape) cassette
detector slots
TYPE IV (metal tape) cassette
detector slots

Notes

- The use of a metal tape cassette which does not have detector slots, is not recommended with this cassette deck.
- TYPE III (Fe-Cr) cassettes do not have detector slots and are detected as TYPE I cassettes. For optimum playback of TYPE III cassettes, adjust the tone quality with the TONE controls.

*2 Sony new automatic recording system

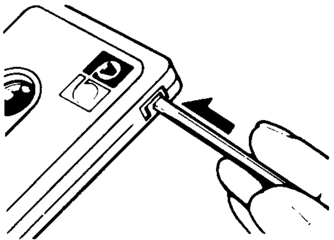
This new system automatically set the proper recording level for the cassette to be used, according to the type of tape detected by the automatic tape selector system: TYPE I, TYPE II or TYPE IV. You can take full advantage of high-quality TYPE II and TYPE IV cassettes with this cassette deck.

- For TYPE III cassettes, the recording level is properly adjusted as its recording characteristics are the same as the TYPE I cassette.

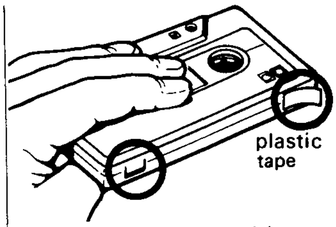
NOTES ON CASSETTES

To protect cassettes from accidental erasure

Remove the tab as illustrated so that the record mode does not function when the record button is pressed. To record on a cassette once tabs have been removed, simply cover the slot with plastic tape.

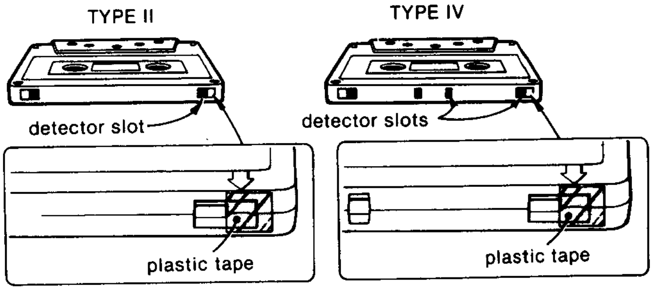


To protect side A recording



Do not stick any material on the cassette except for tape on the circled portions.

- Be careful not to cover the detector slots of the TYPE II (CrO_2 tape) and TYPE IV (metal tape) cassettes.

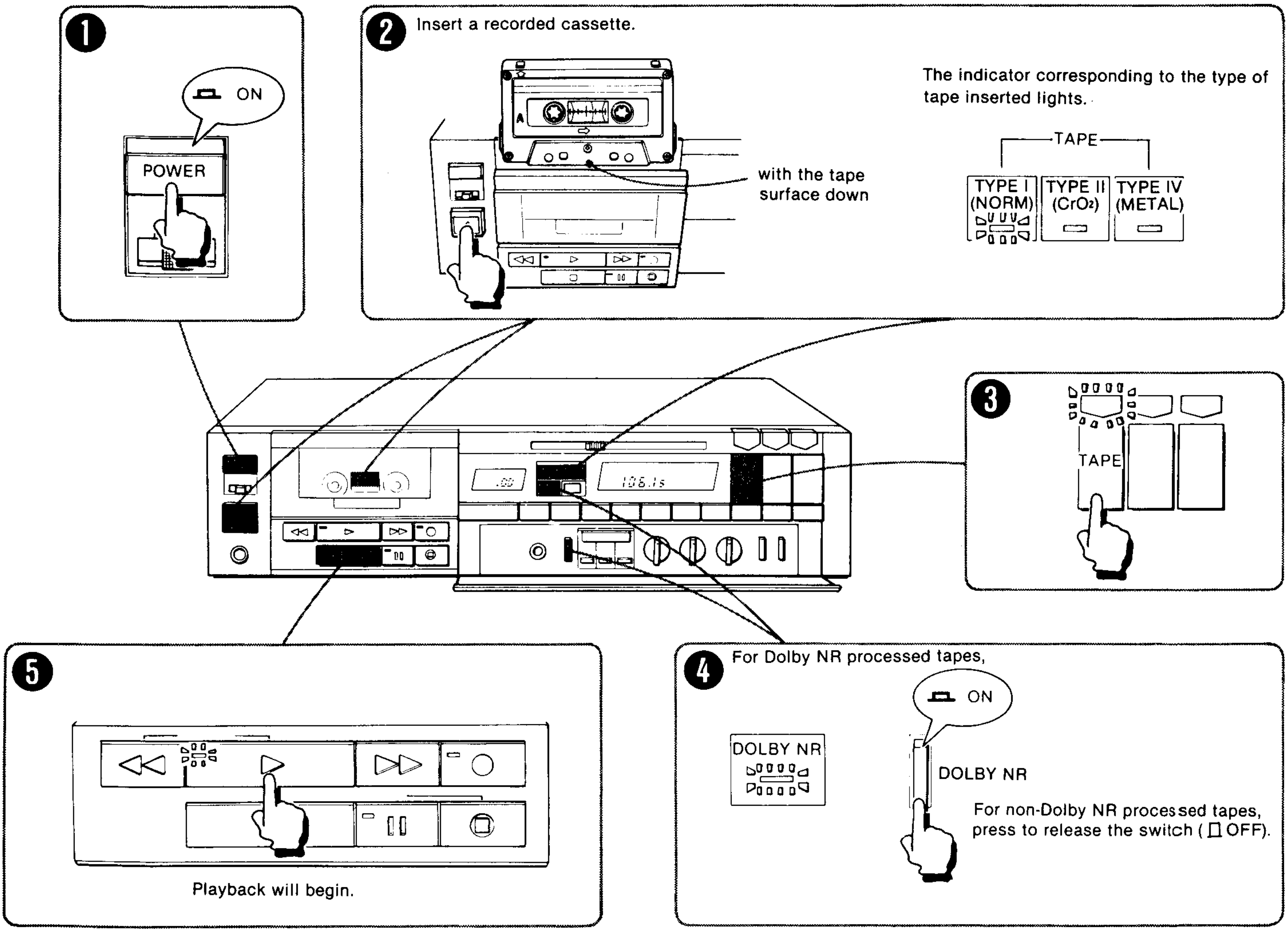


Cassette care

- Do not stick thick paper or tape onto the cassette, as this may affect proper cassette alignment and prevent proper tape contact with the head.
- Keep cassettes away from magnetic equipment such as speakers, amplifiers, etc., as erasure or distortion on your recorded tape could occur.
- Do not expose a cassette to direct sunlight, extremely cold temperatures or moisture.

PLAYBACK

Follow the numbered sequence.



❷ Insert a recorded cassette.

with the tape surface down

The indicator corresponding to the type of tape inserted lights.

❹ For Dolby NR processed tapes,

For non-Dolby NR processed tapes, press to release the switch (⨅ OFF).

❺ Playback will begin.

❶
ON
POWER
TAPE
TYPE I (NORM)
TYPE II (CrO₂)
TYPE IV (METAL)
❸
TAPE
ON
DOLBY NR
DOLBY NR
A

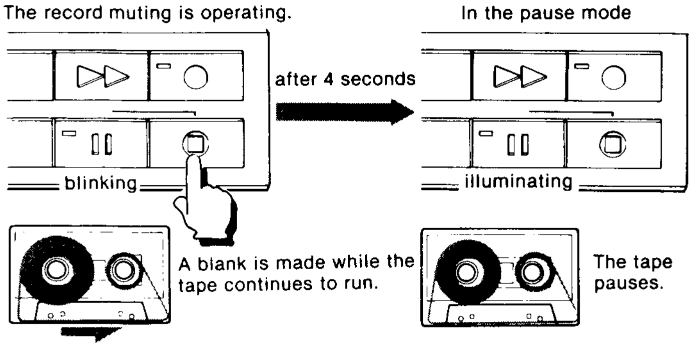
- Adjust the playback volume, tone quality and stereo balance with the VOLUME, TONE and BALANCE controls.
- To stop the tape, press the ■ button.

At the end of the tape, the tape stops and the pressed button is automatically disengaged.

RECORD MUTING

By pressing the O button during recording, four seconds interspacing is provided automatically, eliminating unwanted program material such as broadcasting commercials. While the record muting is operating, the incoming signal is not recorded on the tape but it continues to be fed to the monitor so that you know exactly what is going on.

❶ Press the O button when the segment you do not want to record begins. The indicator of the II button will blink, and the tape path will pause automatically after four seconds.


The record muting is operating.
In the pause mode
after 4 seconds
blinking
illuminating
A blank is made while the tape continues to run.
The tape pauses.

❷ When you want to resume recording, press the II button.

To insert a blank less than four seconds long
Press the O button to mute recording. Press the II button when you want to resume recording.

To insert a blank over four seconds long
Hold down the O button for as long as you want the blank segment on the tape to be. After four seconds, the indicator of the II button will blink more rapidly. When you release the O button, the tape deck will be in the pause mode. When you want to resume recording, press the II button to release the pause mode.

ERASING

When the cassette deck functions in recording mode, the erase head automatically erases any previously recorded material.

To erase without recording:

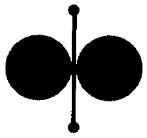
❶ Make sure that the safety tab of the cassette is in place, or that the tab slot is covered with plastic tape.

❷ Make sure that nothing is connected to the MIC jack.

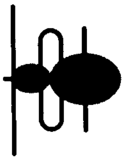
❸ Depress the TAPE button of the function selectors.

❹ Press the ● and ▶ buttons simultaneously.

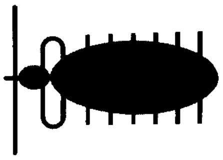
MORE ABOUT FM ANTENNAS
Good FM reception depends not only on receiver sensitivity but on the quality of the received signals. This is determined by the signal strength, the presence of multipath signals* and the geographic location of the FM station. To get the best from your receiver, use an antenna suited to your location.



A ribbon dipole and rabbit-ear antennas pick up signal from both front and rear equally well and are suited for reception in a strong signal area.

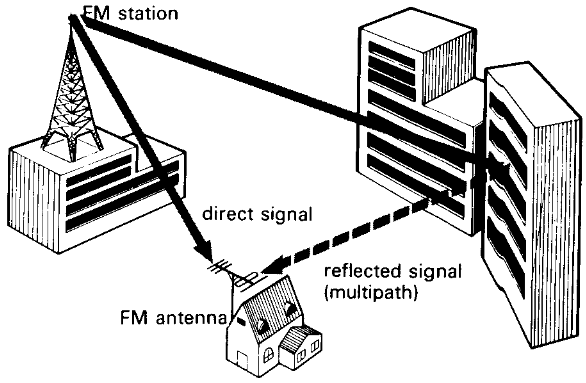


A dipole antenna with reflector has increased sensitivity to front signal and reduced sensitivity to rear signals.



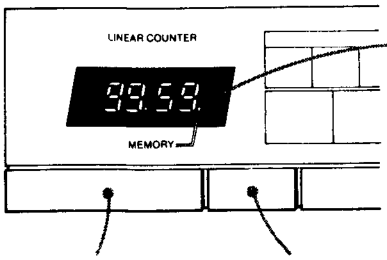
A multi-element type has a narrower pickup pattern with high frontal sensitivity and superior rejection of rear and multipath signals. To receive a distant or weak signal station, use this type of antenna.

*** Multipath reception**
Multipath interference is caused by signal reflections from hills or structures that reach the receiving antenna perceptibly later than a direct signal. The effects of a multipath condition appear as high-frequency noise, distortion, and loss of channel separation of the FM stereo programs. These effects may be eliminated, to a great extent, by using a coaxial lead-in and a good directional antenna that is correctly oriented.



USING THE TAPE COUNTER

The first two digits of this tape counter show the approximate recording or playback time in minutes, and the last two digits show the seconds.



The MEMORY indicator blinks when the memory counter is operating.

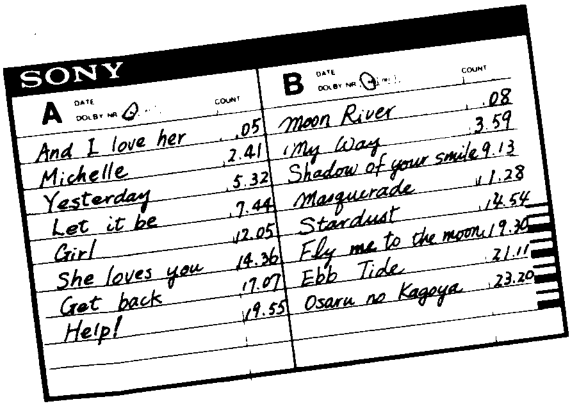
COUNTER RESET button

MEMORY button

1 TAPE COUNTER

To check how much longer you can record
Stop the tape and press the COUNTER RESET button to set the counter to ".00", press the ▸▸ button and let the tape run to the end. The digits on the counter will show the approximate remaining recording time.

To index tape
Before recording or playback, set the counter to ".00" by pressing the COUNTER RESET button.
As the tape runs, the figures of the counter change. Note the numbers and the program being recorded or played back. A desired portion of the tape can thus be readily located later by reference to these numbers.



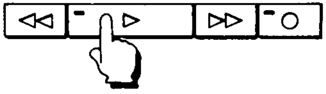
A	COUNT	B	COUNT
And I love her	.05	Moon River	.08
Michelle	2.41	My Way	3.59
Yesterday	5.32	Shadow of your smile	9.13
Let it be	7.44	Masquerade	11.28
Girl	12.05	Stardust	14.54
She loves you	14.36	Fly me to the moon	19.30
Get back	17.07	Ebb Tide	21.11
Help!	19.55	Osaru no Kagoya	23.20

Note
Do not turn off the power while measuring the time because the numbers will return to ".00" when the power is turned on again.

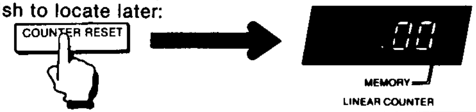
The accuracy of the counter
This counter is not actually a digital clock, so that the displayed figures are not exactly equal to the actual time spent. The accuracy will vary depending on the type of tape being used.
This counter has been designed using C-60 cassettes as a standard. Make sure that the displayed time is greater than the required actual time when using a C-46 or C-30 cassette.

2 MEMORY STOP—To rewind the tape up to the desired point

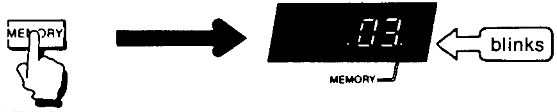
1 Start recording or playback.



2 At the point which you wish to locate later:

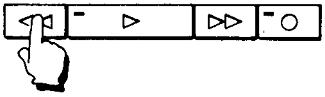


3

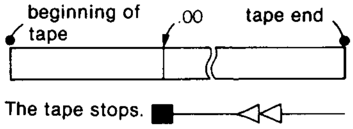


If the MEMORY indicator is blinking, do not press the MEMORY button.

4 After recording or playback,



The tape begins to rewind and stops at the ".00" automatically.



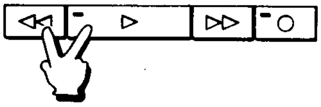
Why does the tape stops around "99.57"?
—In order to avoid cutting off the starting point.

How does one rewind the tape further than ".00"?
—Press the ◂◂ button again.

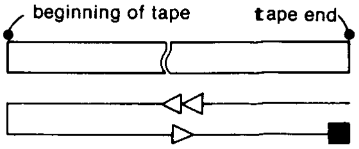
3 AUTO PLAY—To play from the beginning of the tape

1 Make sure that the MEMORY indicator is not blinking. If it is blinking, press the MEMORY button to cancel the previous memory.

2 When you rewind the tape,

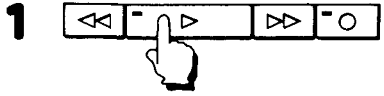


After the tape is completely rewound, the tape will automatically replay.

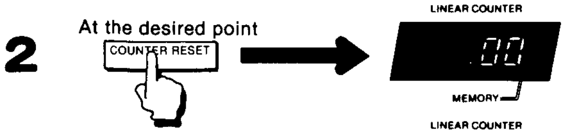


4 MEMORY PLAY—To play from a desired point

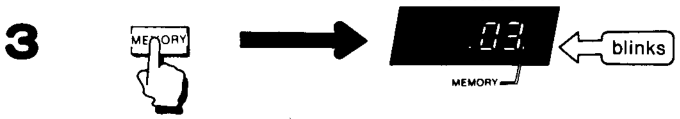
1 Start playback or recording.



2 At the desired point

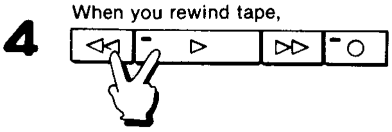


3

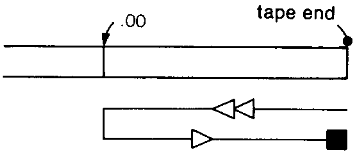


If the MEMORY indicator is blinking, do not press the MEMORY button.

4 When you rewind tape,



The tape will replay automatically after rewinding up to the ".00" point.



LISTENING TO RECORDS

To listen to a record program, first connect the record player as illustrated on page 6, and proceed as follows:

❶ Depress the POWER switch.
❷ Depress the PHONO (AUX/TV) button of the function selectors.
❸ Release the AUX/TV PHONO input selector.
- If your record player is equipped with a ceramic cartridge, connect it to the AUX/TV jacks, and depress the AUX/TV PHONO input selector.

❹ Start the record playing on the player.
❺ Adjust the volume, tone quality and stereo balance.
- If you set the built-in cassette deck to the record mode, you can record the record program.

OPERATION WITH AN EXTERNAL TAPE RECORDER

RECORDING ON AN EXTERNAL TAPE RECORDER

❶ Connect an external recorder to the REC OUT jacks. See page 6.
❷ Depress the POWER switch.
❸ Select the program to be recorded with the appropriate function selector and play the program.
- If you depress the TAPE button, a tape copy from the built-in cassette deck to the external recorder can be made.

❹ Set the external recorder to the record mode.
- Two recordings can be made simultaneously using both the built-in and the external tape recorders. However, if interference from one recorder is picked up by the other, make just one recording, then copy it.

TAPE PLAYBACK FROM AN EXTERNAL TAPE RECORDER

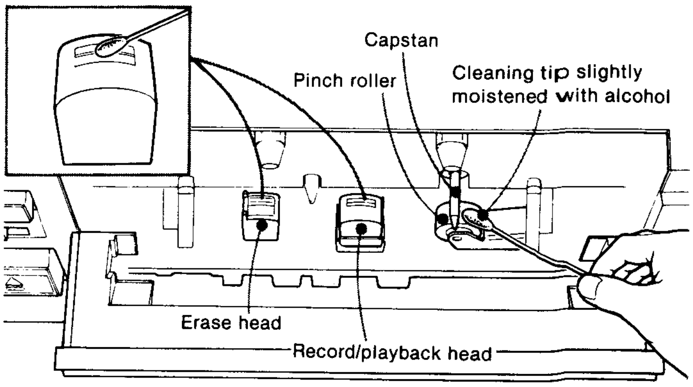
❶ Connect an external recorder to the AUX/TV jacks. See page 6.
❷ Depress the POWER switch.
❸ Depress the PHONO (AUX/TV) button of the function selectors.
❹ Depress the AUX/TV PHONO input selector.
❺ Start tape playback on the external recorder.
❻ Adjust the volume, tone quality and stereo balance.
- If you set the built-in cassette deck to the record mode, you can make a copy of the tape.

MAINTENANCE

CLEANING OF HEADS AND TAPE PATH

We recommend cleaning after every 10 hours of operation. To make the best possible recordings, however, you should clean all surfaces over which the tape travels before every recording.

❶ Press the ⏏ button to open the cassette holder.
❷ Wipe the heads, the pinch roller and the capstan with a cleaning tip slightly moistened with cleaning fluid or alcohol.



After cleaning the heads and tape path, do not insert a cassette until the areas cleaned are completely dry.

DEMAGNETIZING HEADS

After 20 to 30 hours of use, enough residual magnetism will have built up on the heads to begin to cause loss of high frequencies and hiss. At this time you should demagnetize the heads and all metal parts in the tape path with a commercially available head demagnetizer. Be sure that the receiver is turned off while you demagnetize.

1-4. TROUBLE CHECKS

The following checks will assist in the correction of most problems which you may encounter with your set. Should any problem persist after you have made these checks, consult your nearest Sony service facility.
Before going through the check list below, first pay attention to the following fundamental points.

- The power cord must be connected firmly.
- The speaker connection must also be firm.

RADIO PROGRAM RECEPTION

The STEREO indicator flickers.

- Tune in the station accurately.
- Adjust the antenna.

The desired station cannot be tuned in with the automatic tuning system.

- The signal strength is too weak for automatic tuning.

Adjust the antenna for optimum reception and tune in the station with the manual tuning system.

The desired station cannot be tuned in with the manual tuning system.

- The signal strength is too weak.

Adjust the antenna for optimum reception or press to release the ST/MUTE switch.

Tuning cannot be done correctly when the station preset button is pressed.

- Memorize the frequency correctly.
- Install or replace with new batteries for memory back-up.

AM stations cannot be tuned in. (US, Canadian model)

- The AM channel plan selector on the rear is set incorrectly.

Set the selector correctly according to the AM frequency allocation system of your country.

LW stations cannot be tuned in. (AEP, UK model)

- The LW frequency selector on the rear is set incorrectly.

Set the selector correctly according to the LW frequency allocation system of your country.

Severe hum or noise

- Tune in the station accurately.
- Use shielded antenna leads.
- Avoid long horizontal runs of antenna lead.
- Keep antenna leads away from transformers or motors, and at least 3 meters (10 feet) from TV sets and fluorescent lights.
- Adjust the antenna.
- Connect the ground wire.
- When listening to FM stereo programs, releasing the ST/MUTE switch will provide less noise in the monaural mode.

BUILT-IN CASSETTE DECK OPERATION

The function buttons do not activate right after the POWER switch is turned on.

- Logic-controlled function buttons operate approximately 4 seconds after the POWER switch is turned on.

The function buttons do not activate.

- The cassette holder is not fully closed.
- No cassette in the cassette holder.

The ● button does not activate.

- The tab is removed from the cassette. See page 17.

Tape does not move even when the ▶ button is pressed.

- The tape is wound completely.
- The ❚❚ button is pressed.

Recording or playback cannot be made or there is a decrease in sound level.

- Dirty heads.
- Magnetic contamination on the record/playback head.
- Improper setting of the function selectors.

Excessive wow or flutter, or sound drop-out

- Contamination of the capstan or pinch roller.

Insufficient erasure

- Magnetic contamination of the erase head.

Increase of noise or erasure of high frequencies

- Magnetic build-up on the head.

Unbalanced tone in higher frequencies

- Improper setting of the DOLBY NR switch. If recorded with the switch set to ⊓ ON, play back with it at ⊓ ON. If recorded with it set to Π OFF, play back with it at Π OFF.
- A TYPE III or TYPE IV cassette which does not have detector slots is being used. See page 17.

GENERAL

No audio

- Check the SPEAKERS selector setting.
- Slide the VOLUME control to the right.
- Check the function selector setting.

No audio from one channel or unbalanced left and right volume

- Adjust the BALANCE control.
- Check the speaker connections of the inoperative channel.

Reversed left and right sound

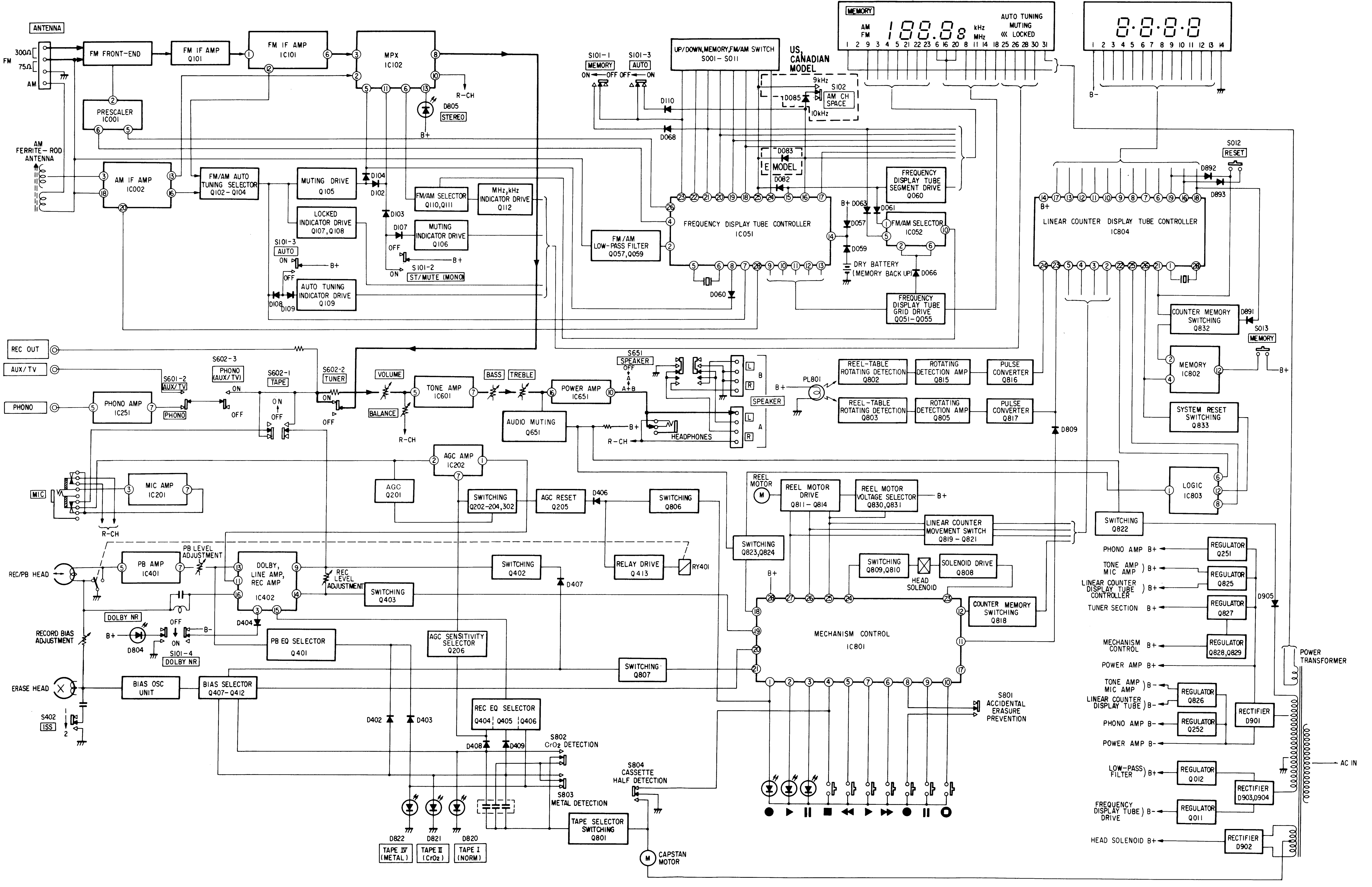
- Check the speaker cord connection and speaker location.

Lack of bass sound or apparently imprecise physical location of musical instruments

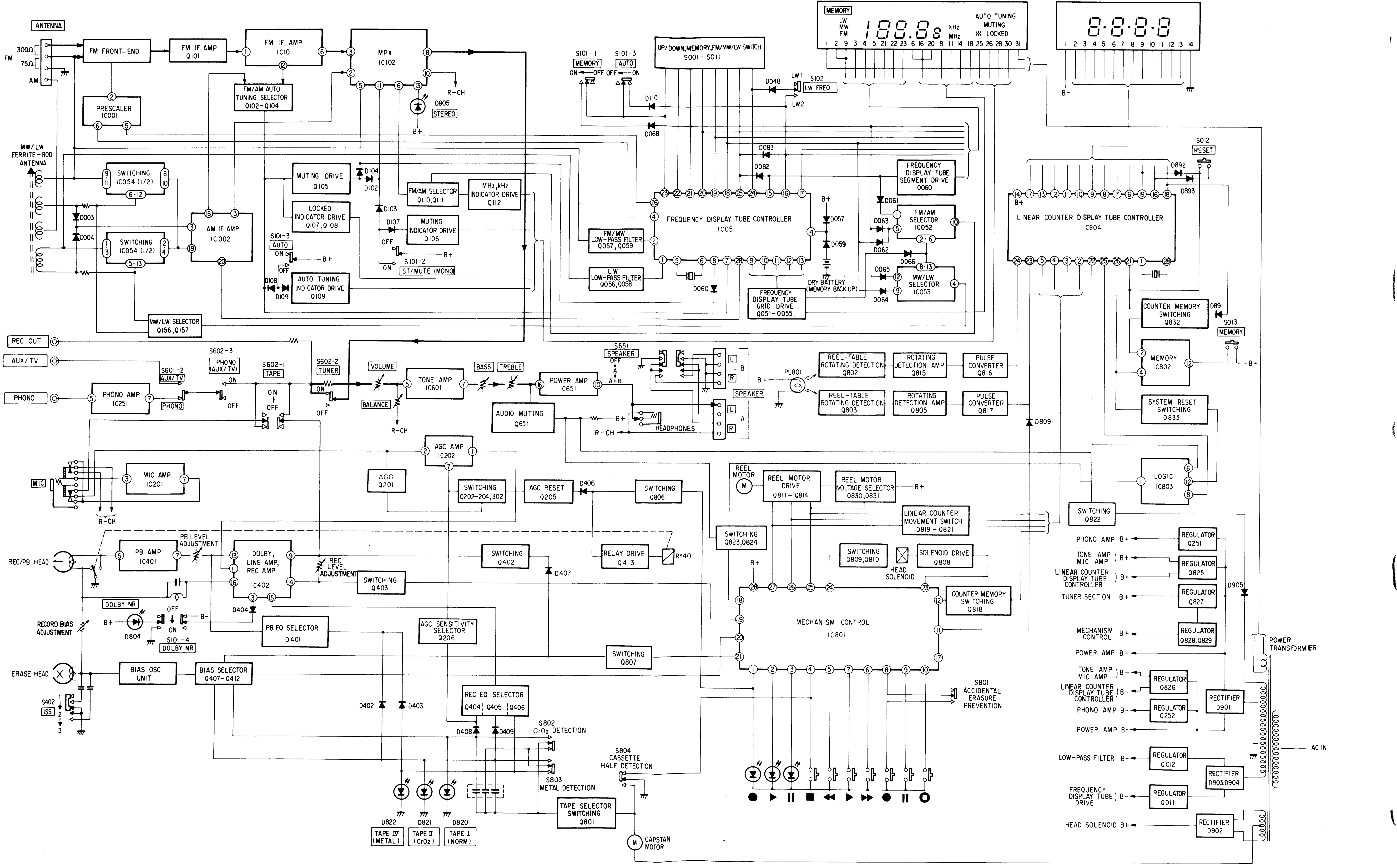
- Check the speaker connection for proper phasing.

1-5. BLOCK DIAGRAM

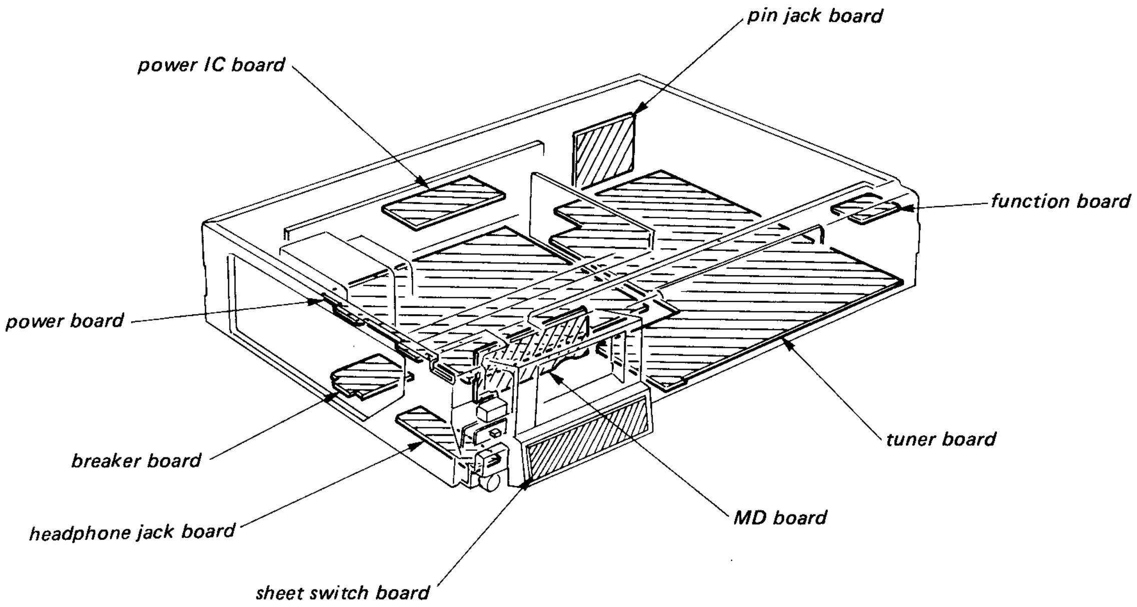
US, Canadian, E Model

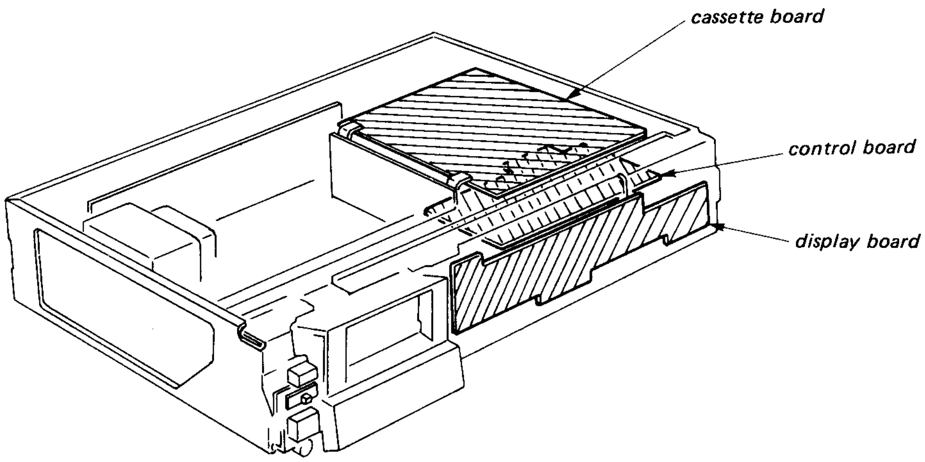

ANTENNA
300Ω
75Ω
FM
AM
FM FRONT-END
FM IF AMP Q101
FM IF AMP IC101
MPX IC102
R-CH
D805 STEREO
B+
PRESCALER IC001
AM FERRITE-ROD ANTENNA
AM IF AMP IC002
FM/AM AUTO TUNING SELECTOR Q102-Q104
MUTING DRIVE Q105
D104
D102
D103
D107
LOCKED INDICATOR DRIVE Q107,Q108
FM/AM SELECTOR Q110,Q111
MHz,kHz INDICATOR DRIVE Q112
MUTING INDICATOR DRIVE Q106
S101-3 AUTO
ON
OFF
S101-2 ST/MUTE (MONO)
AUTO TUNING INDICATOR DRIVE Q109
D108
D109
S101-1 MEMORY
S101-3 AUTO
ON OFF OFF ON
UP/DOWN,MEMORY,FM/AM SWITCH S001-S011
US, CANADIAN MODEL
9kHz
S102 AM CH SPACE
10kHz
D085
D110
D068
D083
E MODEL
D082
FM/AM LOW-PASS FILTER Q057,Q059
FREQUENCY DISPLAY TUBE CONTROLLER IC051
D060
FREQUENCY DISPLAY TUBE SEGMENT DRIVE Q060
B+ D063
D061
D057
FM/AM SELECTOR IC052
D059
DRY BATTERY (MEMORY BACK UP)
D066
FREQUENCY DISPLAY TUBE GRID DRIVE Q051-Q055
FL801 FREQUENCY DISPLAY TUBE
MEMORY
AM FM
kHz MHz
AUTO TUNING
MUTING
LOCKED
FL802 LINEAR COUNTER DISPLAY TUBE
B-
S012 RESET
D892
D893
B+
LINEAR COUNTER DISPLAY TUBE CONTROLLER IC804
COUNTER MEMORY SWITCHING Q832
D891
S013 MEMORY
MEMORY IC802
B+
SYSTEM RESET SWITCHING Q833
LOGIC IC803
REC OUT
AUX/TV
PHONO
S601-2 AUX/TV
PHONO AMP IC251
PHONO
S602-3 PHONO (AUX/TV)
S602-1 TAPE
S602-2 TUNER
ON
OFF
VOLUME
BALANCE
R-CH
TONE AMP IC601
BASS
TREBLE
POWER AMP IC651
AUDIO MUTING Q651
S651 SPEAKER
OFF
A
A+B
B
L
R
SPEAKER
HEADPHONES
PL801
REEL-TABLE ROTATING DETECTION Q802
ROTATING DETECTION AMP Q815
PULSE CONVERTER Q816
REEL-TABLE ROTATING DETECTION Q803
ROTATING DETECTION AMP Q805
PULSE CONVERTER Q817
D809
MIC
MIC AMP IC201
AGC AMP IC202
AGC Q201
SWITCHING Q202-204,302
AGC RESET Q205
D406
SWITCHING Q806
REEL MOTOR
REEL MOTOR DRIVE Q811-Q814
REEL MOTOR VOLTAGE SELECTOR Q830,Q831
LINEAR COUNTER MOVEMENT SWITCH Q819-Q821
SWITCHING Q822
SWITCHING Q823,Q824
REC/PB HEAD
PB AMP IC401
PB LEVEL ADJUSTMENT
DOLBY, LINE AMP, REC AMP IC402
REC LEVEL ADJUSTMENT
SWITCHING Q403
SWITCHING Q402
D407
RELAY DRIVE Q413
RY401
SWITCHING Q809,Q810
SOLENOID DRIVE Q808
HEAD SOLENOID
DOLBY NR
RECORD BIAS ADJUSTMENT
D804
S101-4 DOLBY NR
D404
PB EQ SELECTOR Q401
AGC SENSITIVITY SELECTOR Q206
MECHANISM CONTROL IC801
COUNTER MEMORY SWITCHING Q818
SWITCHING Q807
ERASE HEAD
BIAS OSC UNIT
BIAS SELECTOR Q407-Q412
S402 ISS
D402
D403
REC EQ SELECTOR Q404 Q405 Q406
D408
D409
S802 CrO2 DETECTION
S803 METAL DETECTION
S804 CASSETTE HALF DETECTION
TAPE SELECTOR SWITCHING Q801
CAPSTAN MOTOR
D822 TAPE IV (METAL)
D821 TAPE II (CrO2)
D820 TAPE I (NORM)
S801 ACCIDENTAL ERASURE PREVENTION
PHONO AMP B+
TONE AMP MIC AMP B+
LINEAR COUNTER DISPLAY TUBE CONTROLLER B+
TUNER SECTION B+
MECHANISM CONTROL B+
POWER AMP B+
TONE AMP MIC AMP B-
LINEAR COUNTER DISPLAY TUBE B-
PHONO AMP B-
POWER AMP B-
LOW-PASS FILTER B+
FREQUENCY DISPLAY TUBE DRIVE B-
HEAD SOLENOID B+
REGULATOR Q251
REGULATOR Q825
REGULATOR Q827
REGULATOR Q828,Q829
REGULATOR Q826
REGULATOR Q252
REGULATOR Q012
REGULATOR Q011
RECTIFIER D901
RECTIFIER D903,D904
RECTIFIER D902
D905
POWER TRANSFORMER
AC IN

AEP, UK Model


FL801 FREQUENCY DISPLAY TUBE
MEMORY
LW
MW
FM
AUTO TUNING
MUTING
LOCKED
kHz
MHz
FL802 LINEAR COUNTER DISPLAY TUBE
ANTENNA
FM
300Ω
75Ω
AM
FM FRONT-END
FM IF AMP Q101
FM IF AMP IC101
MPX IC102
R-CH
D805
STEREO
B+
FM/AM AUTO TUNING SELECTOR Q102-Q104
PRESCALER IC001
MW/LW FERRITE-ROD ANTENNA
SWITCHING IC054 (1/2)
D003
D004
AM IF AMP IC002
MUTING DRIVE Q105
D104
D102
LOCKED INDICATOR DRIVE Q107,Q108
D103
D107
MUTING INDICATOR DRIVE Q106
FM/AM SELECTOR Q110,Q111
MHz,kHz INDICATOR DRIVE Q112
S101-3 AUTO
ON
OFF
S101-2 ST/MUTE (MONO)
D108
D109
AUTO TUNING INDICATOR DRIVE Q109
MW/LW SELECTOR Q156,Q157
S101-1 MEMORY
S101-3 AUTO
ON — OFF
OFF — ON
UP/DOWN, MEMORY, FM/MW/LW SWITCH S001-S011
D110
D068
D048
LW1
S102
LW FREQ
LW2
D083
D082
FREQUENCY DISPLAY TUBE SEGMENT DRIVE Q060
D061
FM/MW LOW-PASS FILTER Q057,Q059
LW LOW-PASS FILTER Q056,Q058
FREQUENCY DISPLAY TUBE CONTROLLER IC051
D057
D059
DRY BATTERY (MEMORY BACK UP)
D060
FREQUENCY DISPLAY TUBE GRID DRIVE Q051-Q055
D063
FM/AM SELECTOR IC052
D062
D066
D065
MW/LW SELECTOR IC053
D064
S012 RESET
D892
D893
LINEAR COUNTER DISPLAY TUBE CONTROLLER IC804
COUNTER MEMORY SWITCHING Q832
D891
S013 MEMORY
MEMORY IC802
SYSTEM RESET SWITCHING Q833
REC OUT
AUX/TV
PHONO
PHONO AMP IC251
S601-2 AUX/TV
PHONO
S602-3 PHONO (AUX/TV)
S602-1 TAPE
S602-2 TUNER
VOLUME
BALANCE
TONE AMP IC601
BASS
TREBLE
POWER AMP IC651
AUDIO MUTING Q651
S651 SPEAKER
A+B
SPEAKER
HEADPHONES
PL801
REEL-TABLE ROTATING DETECTION Q802
ROTATING DETECTION AMP Q815
PULSE CONVERTER Q816
REEL-TABLE ROTATING DETECTION Q803
ROTATING DETECTION AMP Q805
PULSE CONVERTER Q817
D809
MIC
MIC AMP IC201
AGC AMP IC202
AGC Q201
SWITCHING Q202-204,302
AGC RESET Q205
D406
SWITCHING Q806
REEL MOTOR
REEL MOTOR DRIVE Q811-Q814
REEL MOTOR VOLTAGE SELECTOR Q830,Q831
LOGIC IC803
SWITCHING Q822
LINEAR COUNTER MOVEMENT SWITCH Q819-Q821
REC/PB HEAD
PB AMP IC401
PB LEVEL ADJUSTMENT
DOLBY, LINE AMP, REC AMP IC402
REC LEVEL ADJUSTMENT
SWITCHING Q403
SWITCHING Q402
D407
RELAY DRIVE Q413
RY401
SWITCHING Q823,Q824
SWITCHING Q809,Q810
HEAD SOLENOID
SOLENOID DRIVE Q808
COUNTER MEMORY SWITCHING Q818
DOLBY NR
RECORD BIAS ADJUSTMENT
D804
S101-4 DOLBY NR
D404
PB EQ SELECTOR Q401
AGC SENSITIVITY SELECTOR Q206
MECHANISM CONTROL IC801
SWITCHING Q807
ERASE HEAD
BIAS OSC UNIT
BIAS SELECTOR Q407-Q412
S402 ISS
REC EQ SELECTOR Q404 Q405 Q406
D402
D403
D408
D409
S802 CrO₂ DETECTION
S803 METAL DETECTION
S804 CASSETTE HALF DETECTION
TAPE SELECTOR SWITCHING Q801
CAPSTAN MOTOR
D822 TAPE IV (METAL)
D821 TAPE II (CrO₂)
D820 TAPE I (NORM)
S801 ACCIDENTAL ERASURE PREVENTION
PHONO AMP B+
REGULATOR Q251
TONE AMP MIC AMP B+
REGULATOR Q825
LINEAR COUNTER DISPLAY TUBE CONTROLLER B+
REGULATOR Q827
TUNER SECTION B+
MECHANISM CONTROL B+
REGULATOR Q828,Q829
POWER AMP B+
D905
POWER TRANSFORMER
TONE AMP MIC AMP B-
REGULATOR Q826
LINEAR COUNTER DISPLAY TUBE CONTROLLER B-
RECTIFIER D901
PHONO AMP B-
REGULATOR Q252
POWER AMP B-
LOW-PASS FILTER B+
REGULATOR Q012
RECTIFIER D903,D904
AC IN
FREQUENCY DISPLAY TUBE DRIVE B-
REGULATOR Q011
HEAD SOLENOID B+
RECTIFIER D902

1-6. CIRCUIT BOARDS LOCATION

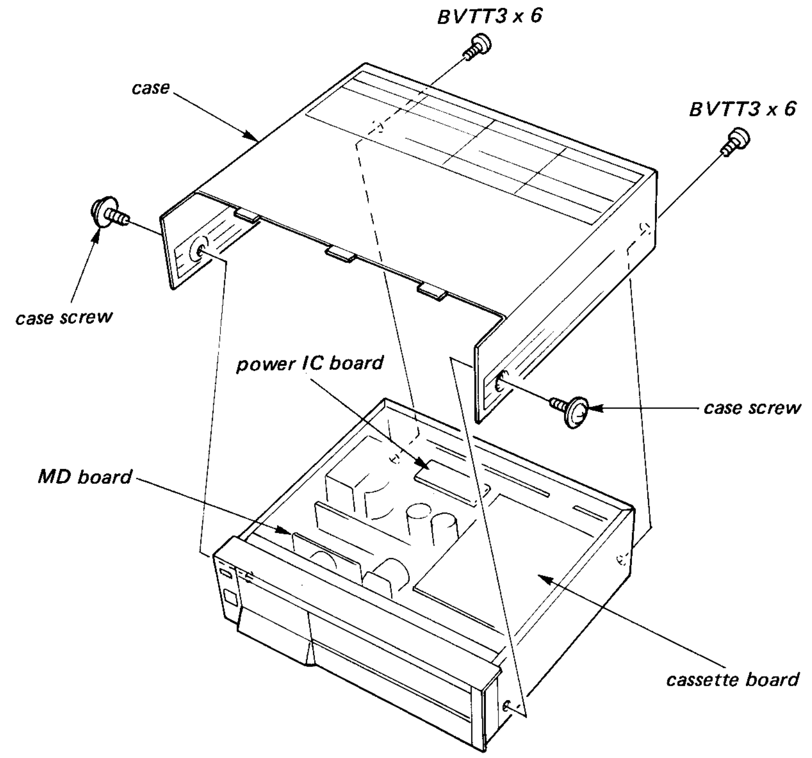

pin jack board
power IC board
function board
power board
tuner board
breaker board
headphone jack board
MD board
sheet switch board


cassette board
control board
display board

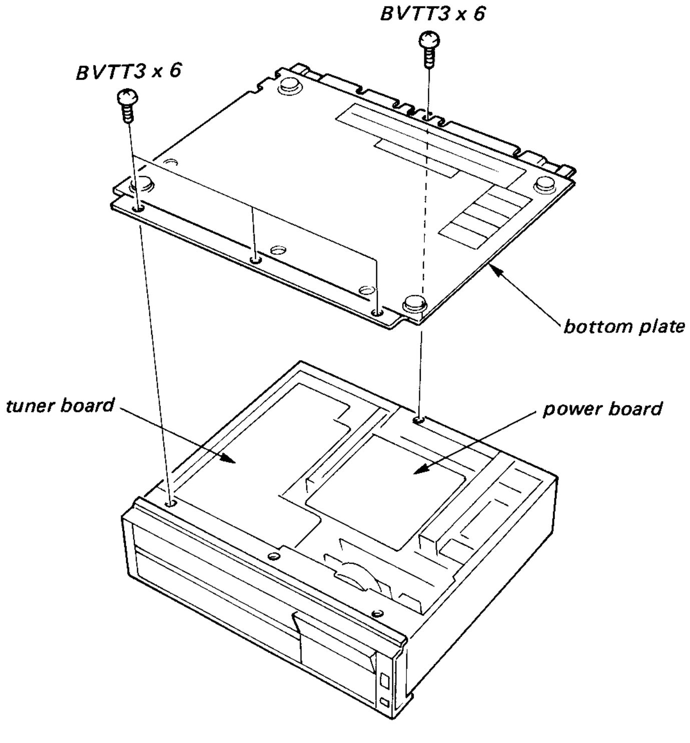
SECTION 2
DISASSEMBLY

Note: Follow the disassembly procedure in the numerical order given.

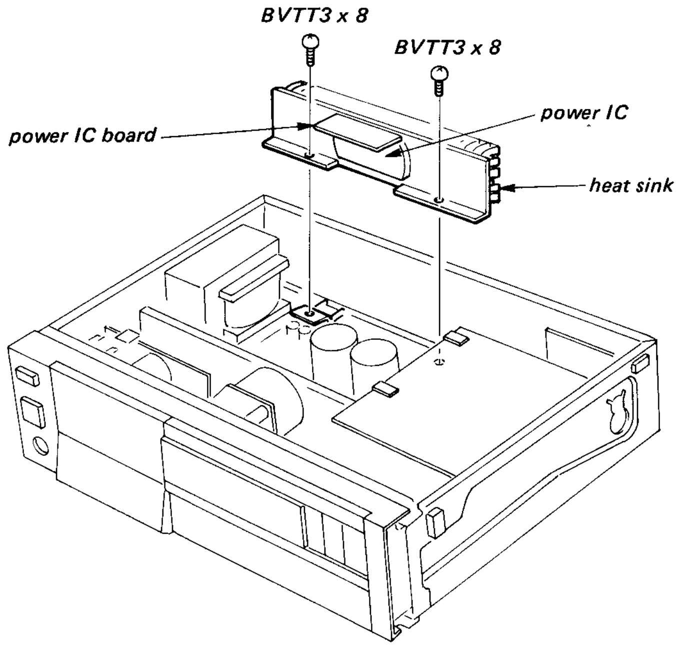
CASE


BVTT3 x 6
case
BVTT3 x 6
case screw
power IC board
case screw
MD board
cassette board

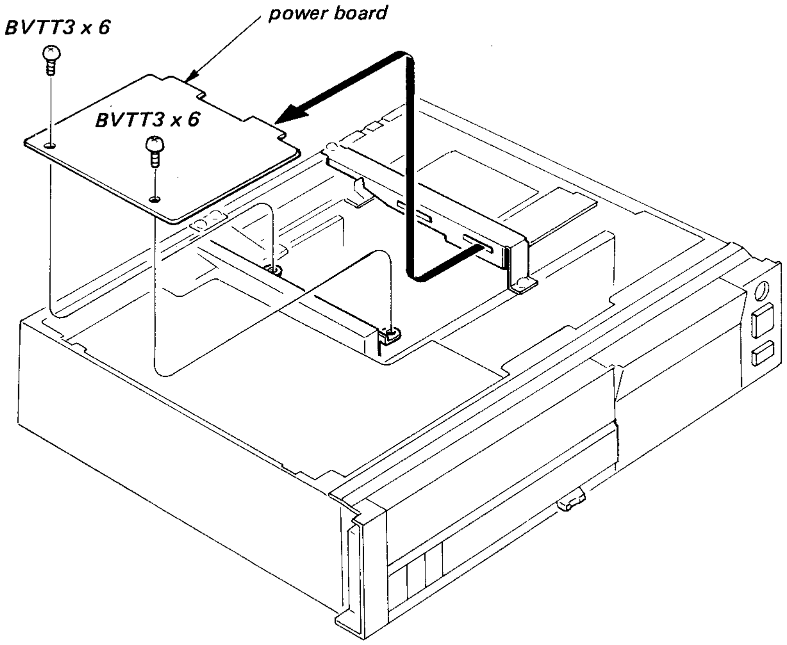
BOTTOM PLATE


BVTT3 x 6
BVTT3 x 6
bottom plate
tuner board
power board

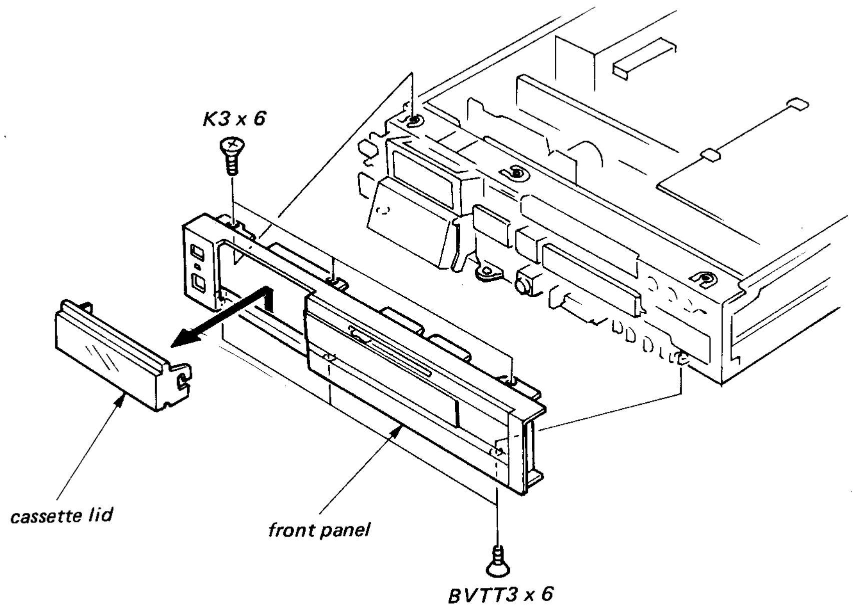
POWER IC BOARD


BVTT3 x 8
BVTT3 x 8
power IC board
power IC
heat sink

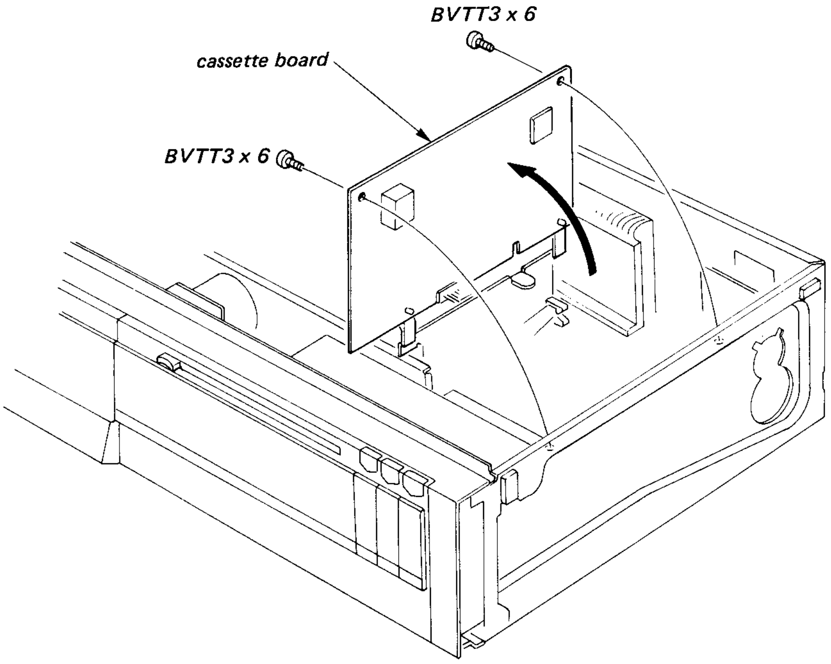
POWER BOARD


BVTT3 x 6
power board
BVTT3 x 6

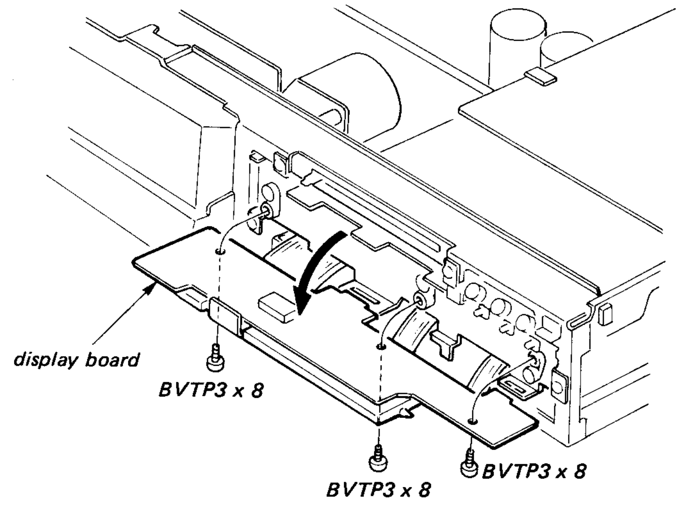
FRONT PANEL

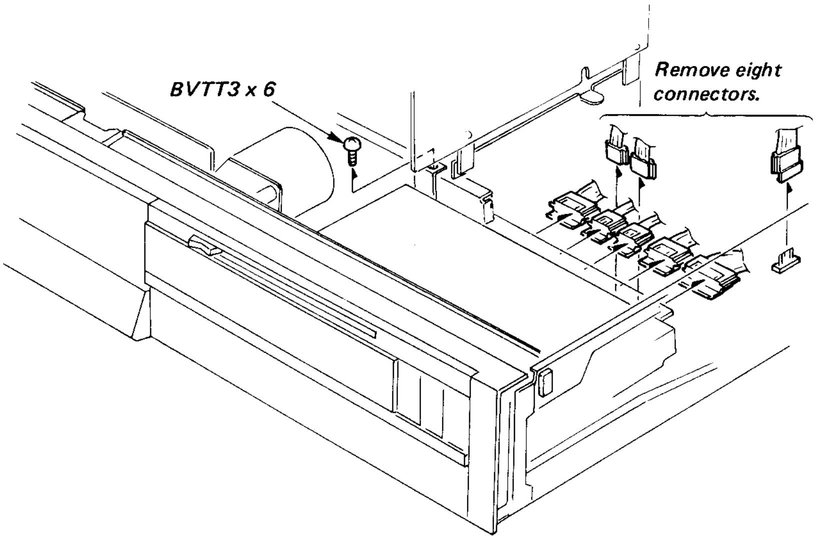

K3 x 6
cassette lid
front panel
BVTT3 x 6

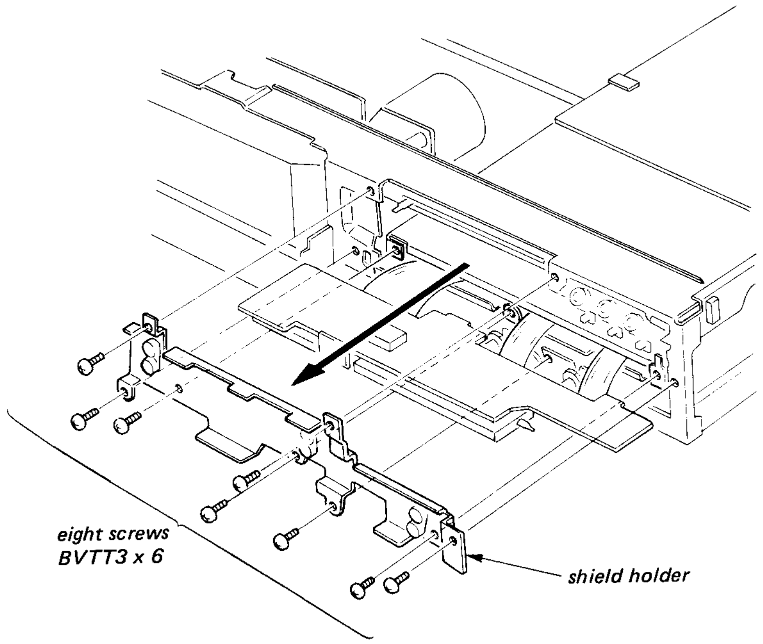
CASSETTE BOARD


BVTT3 x 6
cassette board
BVTT3 x 6

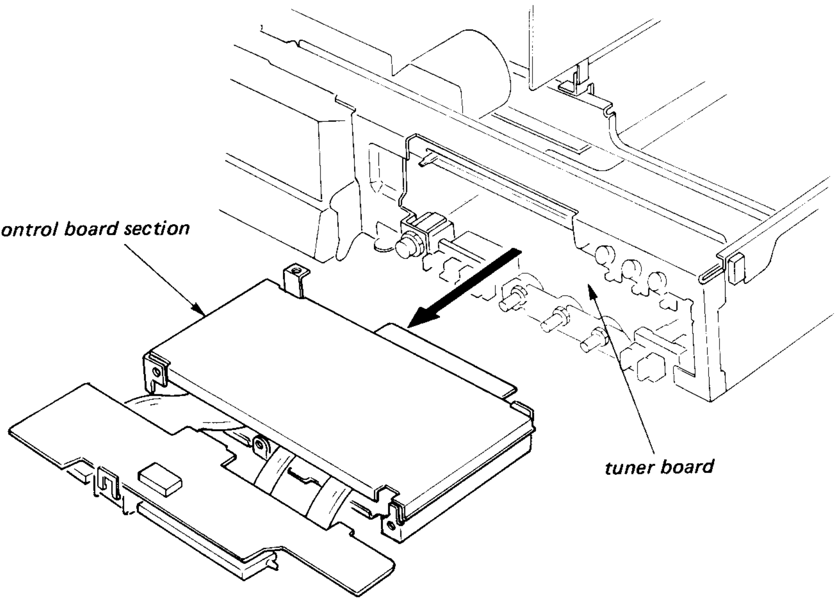
DISPLAY BOARD


display board
BVTP3 x 8
BVTP3 x 8
BVTP3 x 8

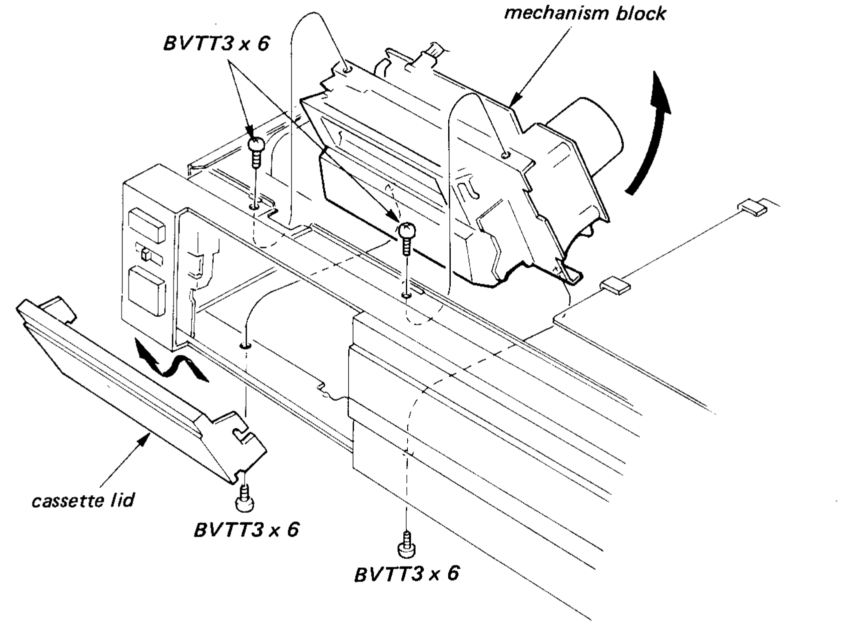

BVTT3 x 6
Remove eight connectors.


eight screws
BVTT3 x 6
shield holder

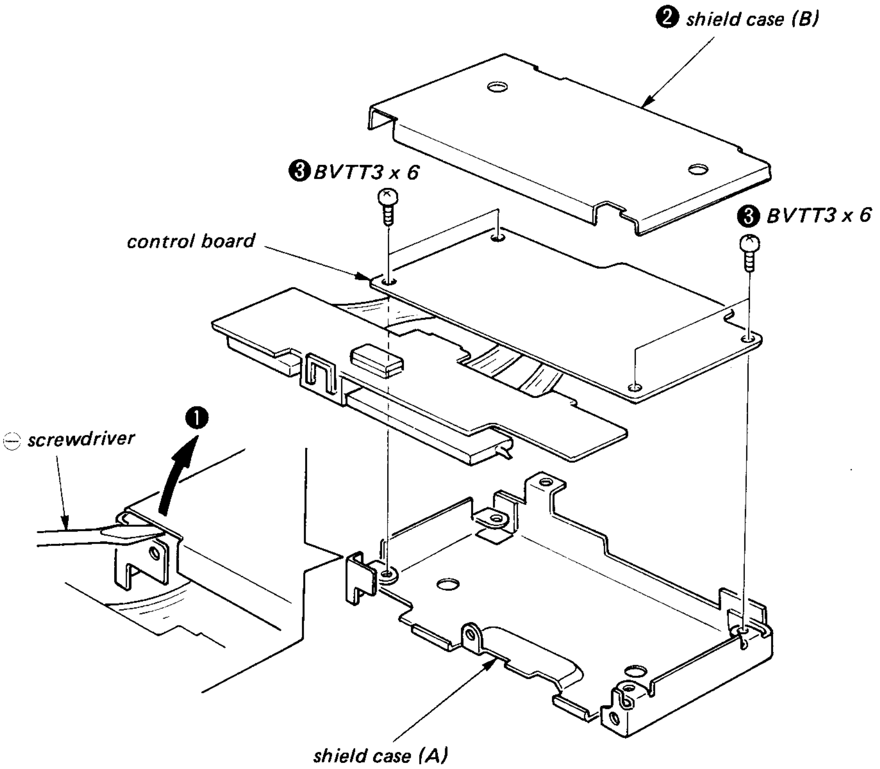
TUNER BOARD


control board section
tuner board

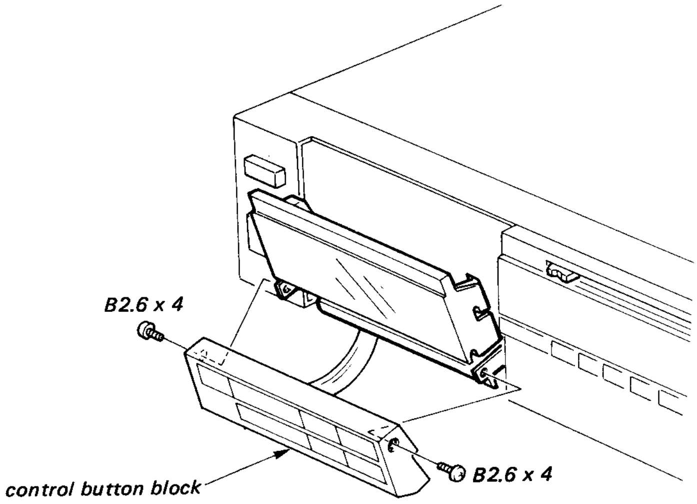
MECHANISM BLOCK


mechanism block
BVTT3 x 6
cassette lid
BVTT3 x 6
BVTT3 x 6

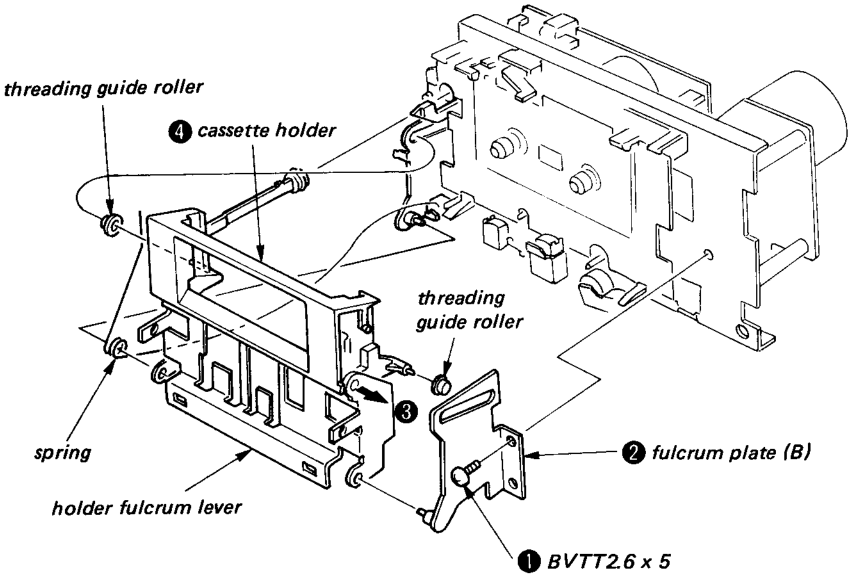
CONTROL BOARD


❷ shield case (B)
❸ BVTT3 x 6
❸ BVTT3 x 6
control board
⊖ screwdriver
❶
shield case (A)

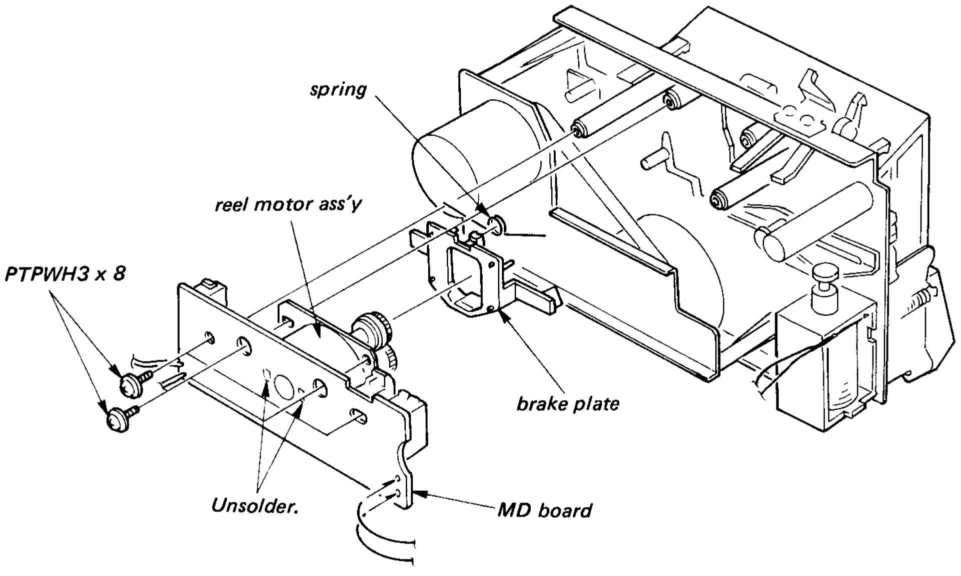
CONTROL BUTTON BLOCK


B2.6 x 4
control button block
B2.6 x 4

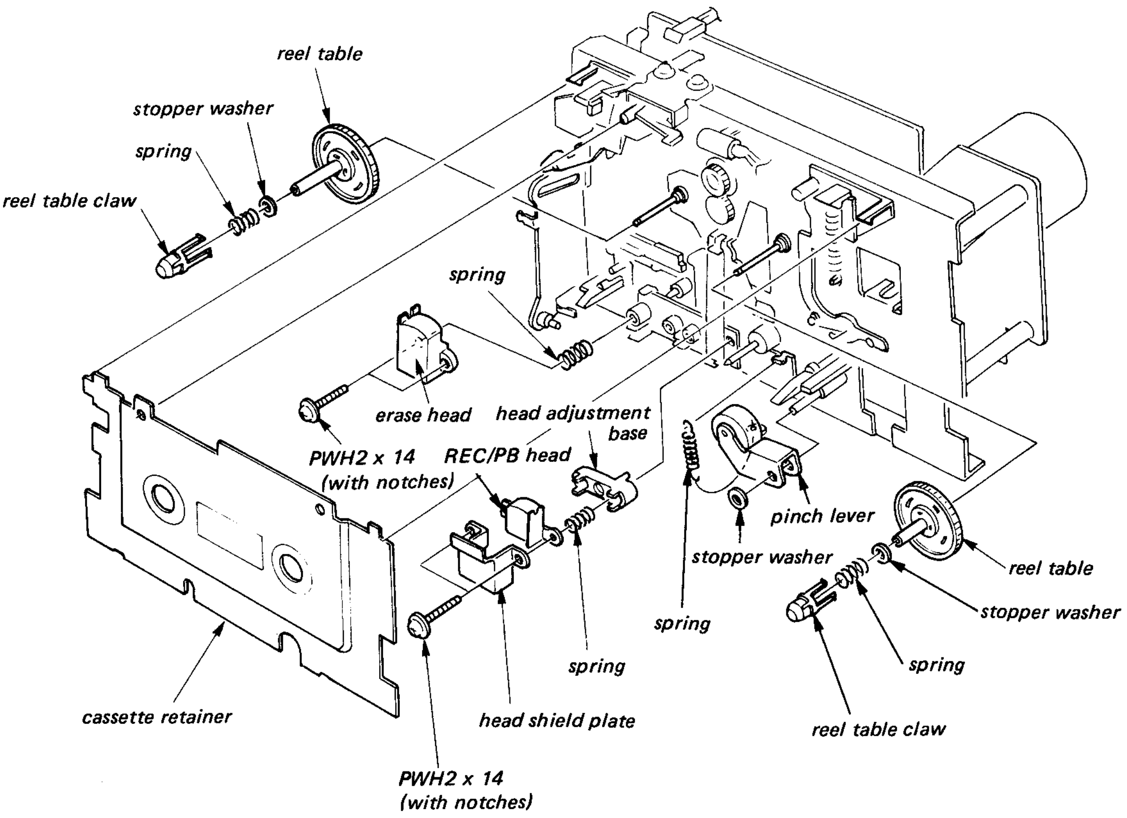
CASSETTE HOLDER


threading guide roller
❹ cassette holder
threading guide roller
❸
spring
❷ fulcrum plate (B)
holder fulcrum lever
❶ BVTT2.6 x 5

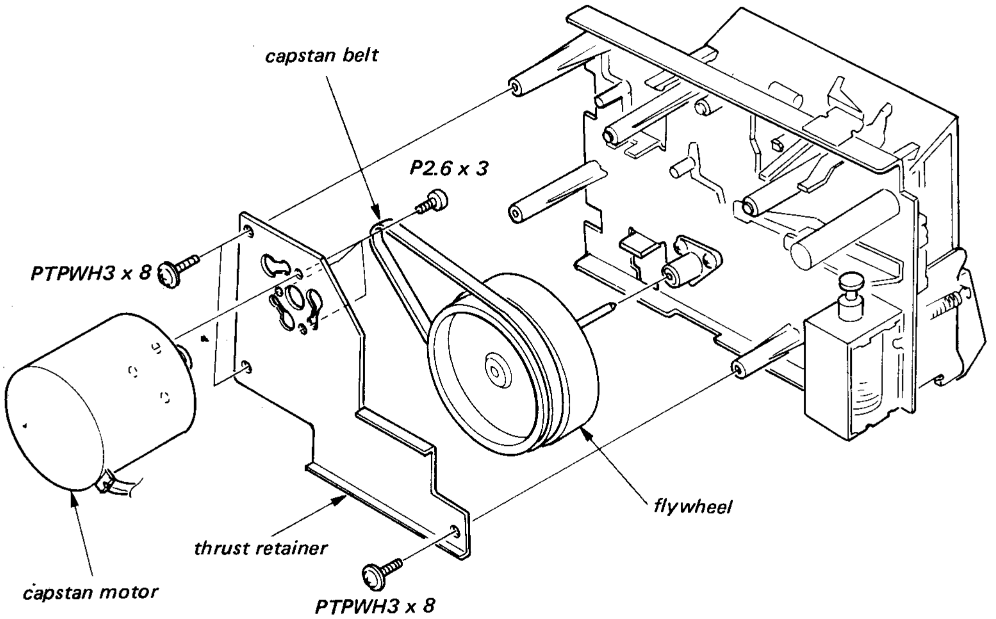
REEL MOTOR ASS'Y, MD BOARD


spring
reel motor ass'y
PTPWH3 x 8
brake plate
Unsolder.
MD board

REC/PB HEAD, ERASE HEAD, REEL TABLE, PINCH LEVER


reel table
stopper washer
spring
reel table claw
spring
erase head
head adjustment base
PWH2 x 14 (with notches)
REC/PB head
pinch lever
stopper washer
reel table
stopper washer
spring
spring
spring
reel table claw
cassette retainer
head shield plate
PWH2 x 14 (with notches)

CAPSTAN MOTOR, CAPSTAN BELT


capstan belt
P2.6 x 3
PTPWH3 x 8
flywheel
thrust retainer
capstan motor
PTPWH3 x 8

SECTION 3
ADJUSTMENTS

3-1. MECHANICAL ADJUSTMENTS

PRECAUTION

1. Clean the following parts with a denatured-alcohol-moistened swab:

record/playback head	pinch roller
erase head	rubber belts
capstan	idlers

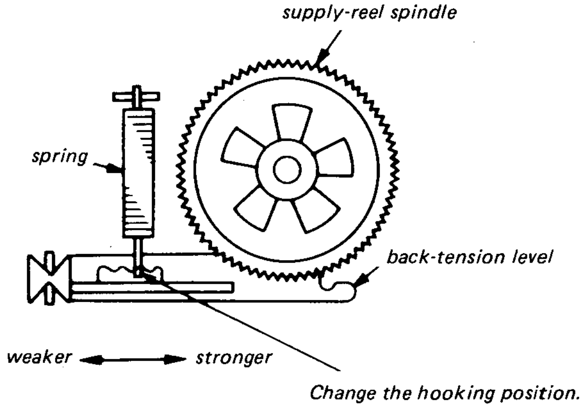
2. Demagnetize the record/playback head with a head demagnetizer.
3. Do not use a magnetized screwdriver for the adjustments.
4. After the adjustments, apply suitable locking compound to the parts adjusted.
5. The adjustments should be performed with the rated power supply voltage unless otherwise noted.

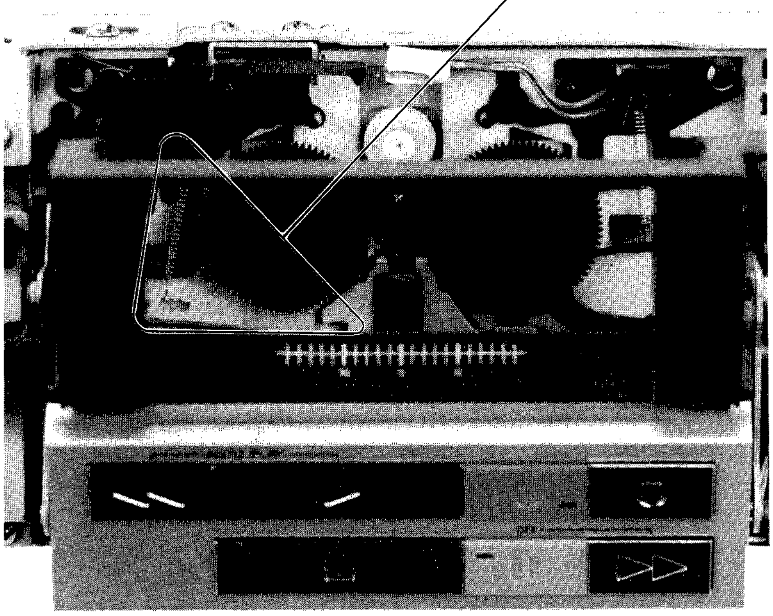
Torque Measurement and Back Tension Torque Adjustment

1.

Torque	Torque meter	Meter reading
Forward	CQ-102C	30 – 60 g·cm (0.42 – 0.83 oz·inch)
Fast forward, rewind	CQ-201B	110–165 g·cm (3.80–5.82 oz·inch)
Back tension	CQ-102C	2.5–4.5 g·cm (0.04–0.06 oz·inch)

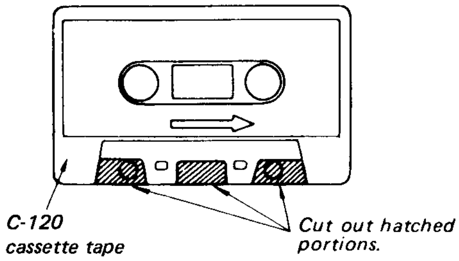
2. If the specified back-tension torque is not obtained, change the hooking position.


supply-reel spindle
spring
back-tension level
weaker ◄——► stronger
Change the hooking position.

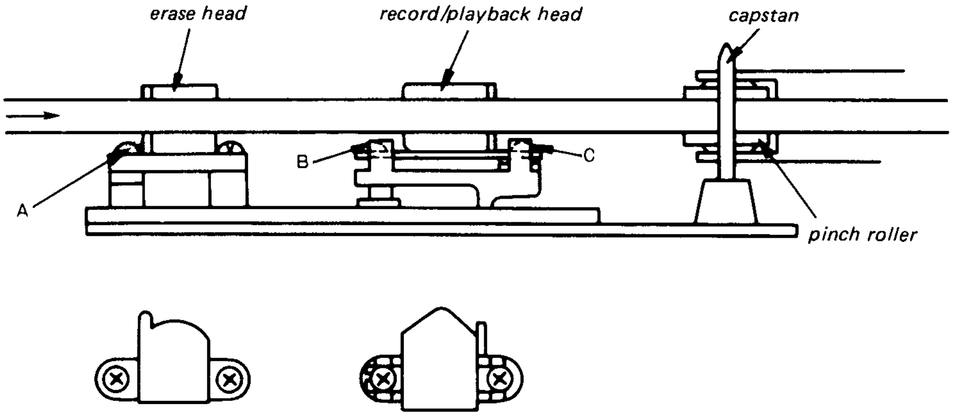


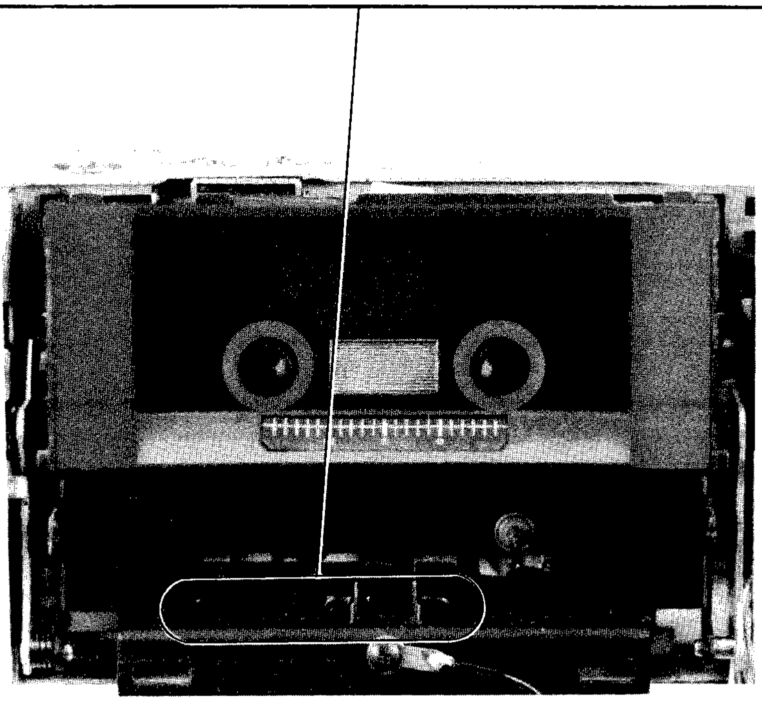
Head Height Adjustment

1. Prepare an adjustment cassette as shown below.


C-120
cassette tape
Cut out hatched
portions.

2. In playback mode and viewing from the front, adjust the head heights by using the adjustment screw A, B, C, to eliminate tape curl and tape twist.


erase head
record/playback head
capstan
A
B
C
pinch roller



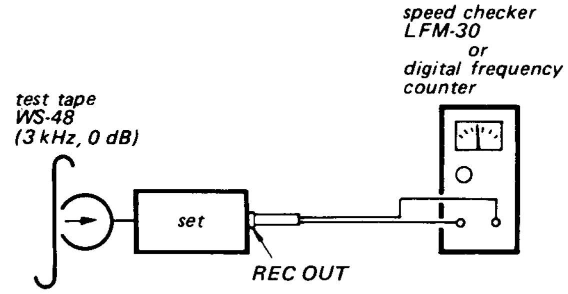
3-2. TAPE RECORDER SECTION ELECTRICAL ADJUSTMENTS

Note: The adjustment should be performed in the order given in this service manual. (Playback section may be adjusted earlier than record section.)
The adjustments should be performed for both L-CH and R-CH.

Capstan Motor Speed Adjustment

Procedure:

Mode : playback


speed checker
LFM-30
or
digital frequency counter
test tape
WS-48
(3 kHz, 0 dB)
set
REC OUT

Specification:

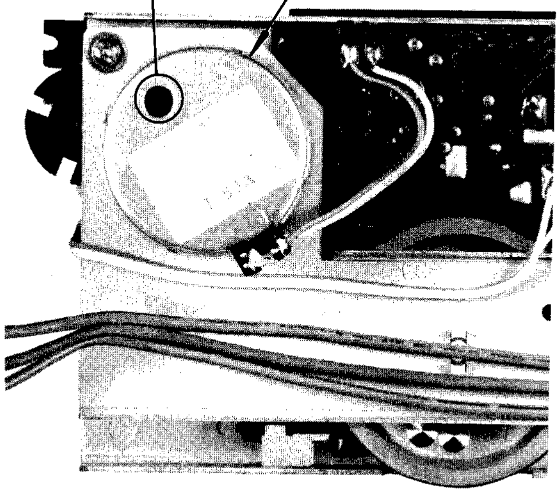
Speed checker	Digital frequency counter
−0.7 to +0.7 %	2,980 – 3,020 Hz

Frequency difference between the beginning and the end of the tape should be within 1 % (30 Hz).

Adjustment Location:

Adjust the speed by using screwdriver. When turning the screw clockwise, speed is faster.

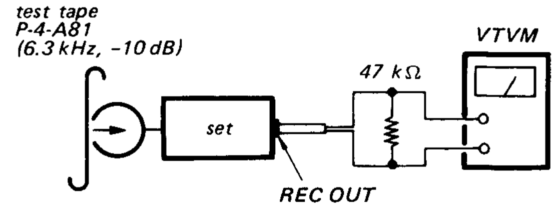
capstan motor



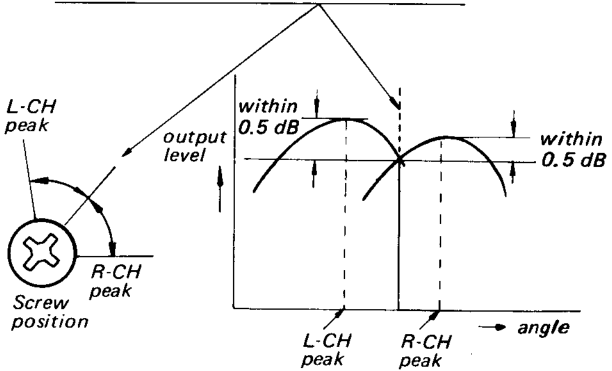
Record/playback Head Azimuth Adjustment

Procedure:

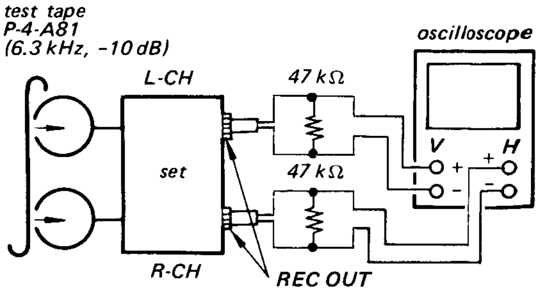
1. Mode: playback

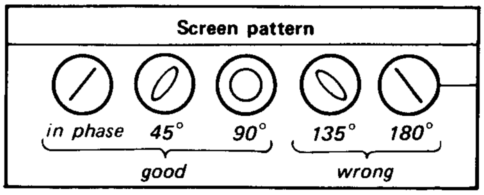

test tape
P-4-A81
(6.3 kHz, -10 dB)
VTVM
47 kΩ
set
REC OUT

2. Turn the adjustment screw for the maximum output levels. If these levels do not match, turn the adjustment screw until both of output levels match together within 0.5 dB.

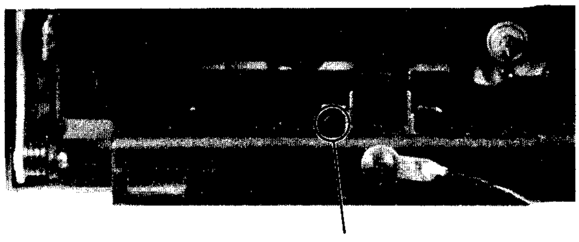

L-CH peak
output level
within 0.5 dB
within 0.5 dB
R-CH peak
Screw position
L-CH peak
R-CH peak
angle

3. Phase Check
   Mode: playback


test tape
P-4-A81
(6.3 kHz, -10 dB)
oscilloscope
L-CH
47 kΩ
47 kΩ
set
V
H
+
+
-
-
R-CH
REC OUT


Screen pattern
in phase
45°
90°
135°
180°
good
wrong

Adjustment Location:


adjustment screw

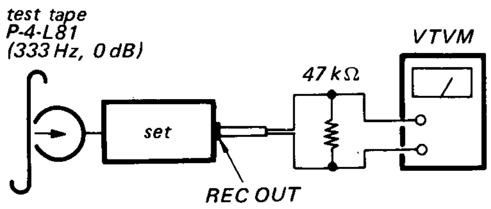
Playback Level Adjustment

Setting:

DOLBY NR switch: OFF

Procedure:

Mode: playback

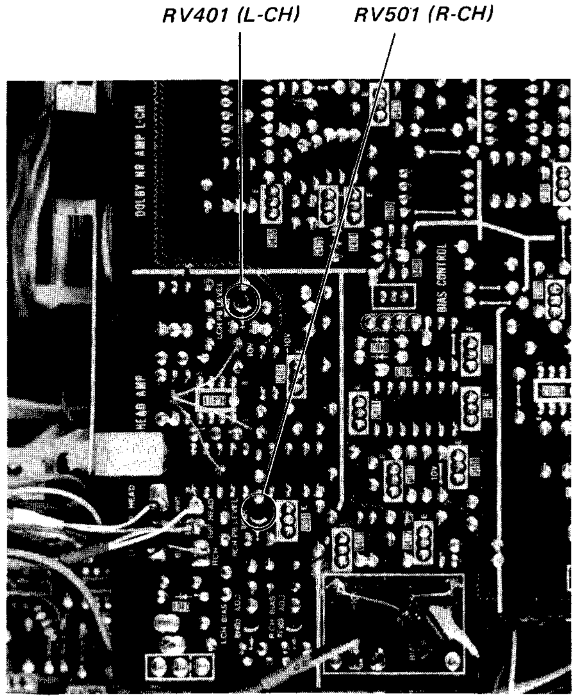

test tape
P-4-L81
(333 Hz, 0 dB)
VTVM
47 kΩ
set
REC OUT

Specification:

REC OUT level: 0.52 ~ 0.55V
(–3.4 ~ –3dB)
Level difference between channels:
less than 0.5dB

Check that the REC OUT level does not change in playback mode while changing the mode from playback to stop several times.

Adjustment Location: cassette board


RV401 (L-CH)
RV501 (R-CH)

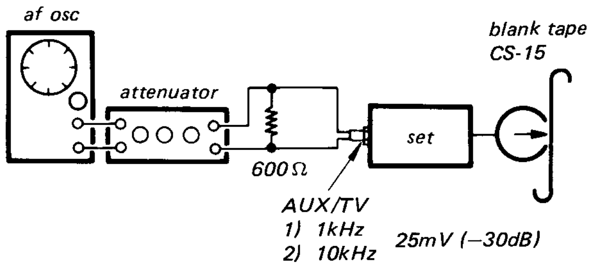
Record Bias Adjustment

Setting:

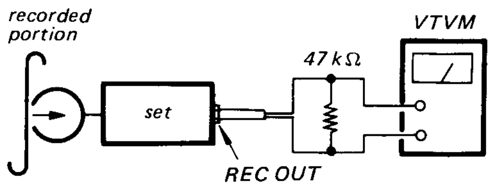
ISS switch: 1
DOLBY NR switch: OFF

Procedure:

1. Mode: record

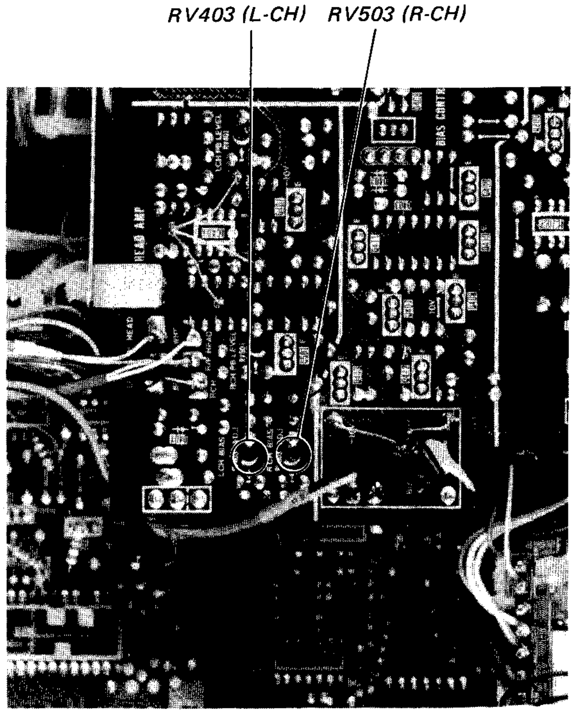

af osc
attenuator
600 Ω
set
blank tape
CS-15
AUX/TV
1) 1kHz
2) 10kHz
25mV (–30dB)

2. Mode: playback


recorded
portion
VTVM
47 kΩ
set
REC OUT

Adjust RV403 (L-CH), RV503 (R-CH) so that the REC OUT level of 10kHz signal is 0 ±1dB relative to that of 1kHz.

Adjustment Location: cassette board


RV403 (L-CH)
RV503 (R-CH)

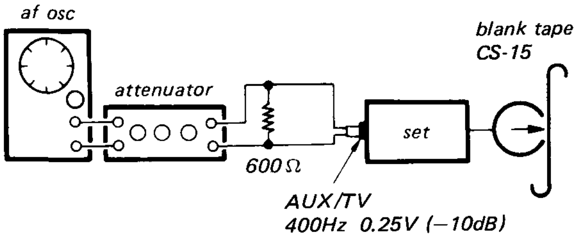
Record Level Adjustment

Setting:

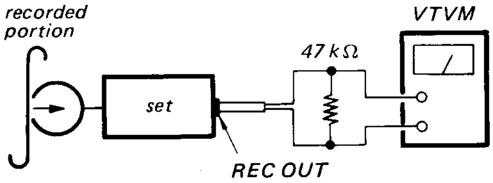
ISS switch: 1
DOLBY NR switch: OFF

Procedure:

1. Mode: record


af osc
blank tape
CS-15
attenuator
set
600Ω
AUX/TV
400Hz 0.25V (−10dB)

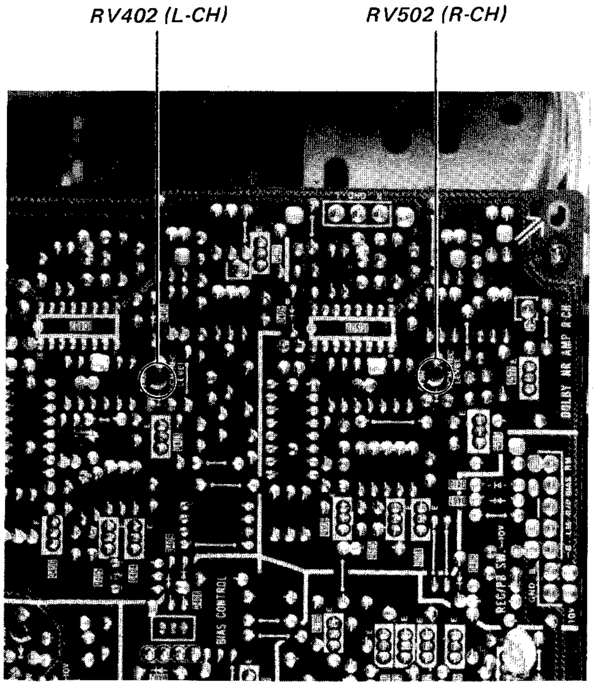
2. Mode: playback


recorded
portion
VTVM
47 kΩ
set
REC OUT

Specification:

REC OUT level: 0.42 ~ 0.44V
(−5.4 to −5dB)

Adjustment Location: cassette board


RV402 (L-CH)
RV502 (R-CH)
DOLBY NR AMP R CH.
BIAS CONTROL
REC/PB SW

3-3. TUNER SECTION ELECTRICAL ADJUSTMENTS

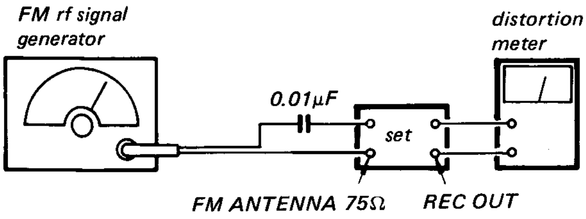
The FM front-end is carefully adjusted at the factory and is supplied as one whole block for replacement.

FM Discriminator Alignment

Setting:

ST/MUTE switch: OFF

Procedure:

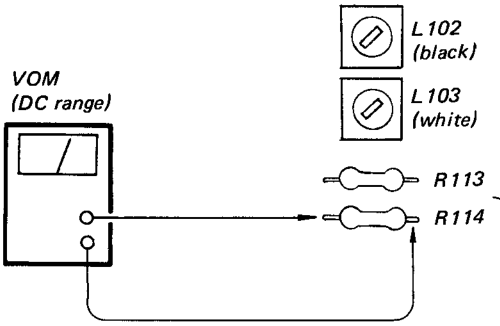

FM rf signal generator
distortion meter
0.01μF
set
FM ANTENNA 75Ω
REC OUT

Carrier frequency: *98MHz*
Output level: *1mV (60dB)*
Modulation: *AEP, UK model*
1kHz, 40kHz deviation (100%)
US, Canadian, E model
1kHz, 75kHz deviation (100%)
Mode: *monaural*

1. Tune the set to 98MHz.
2. Connect a VOM to R114 and adjust the core (black) of L102 for 0V DC reading on the VOM.
3. Adjust the core (white) of L103 for a minimum reading on the distortion meter.

Note: Repeat the adjustments several times.

Adjustment Location: tuner board

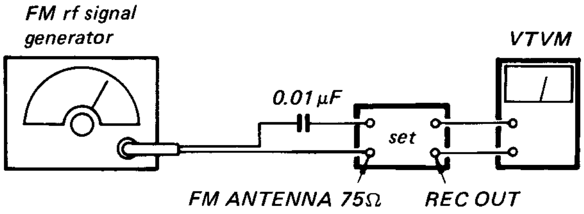

VOM (DC range)
L102 (black)
L103 (white)
R113
R114

FM Muting Level Adjustment

Setting:

ST/MUTE switch: ON

Procedure:


FM rf signal generator
VTVM
0.01μF
set
FM ANTENNA 75Ω
REC OUT

Carrier frequency: *98MHz*
Modulation: *AEP, UK model*
1kHz, 40kHz deviation (100%)
US, Canadian, E model
1kHz, 75kHz deviation (100%)
Output level: *10μV (20dB)*

1. Tune the set to 98MHz.
2. Turn RT101 for 0V reading on the VTVM. And then turn RT101 slowly and stop it just when the VTVM indication suddenly increases.

Adjustment Location: tuner board

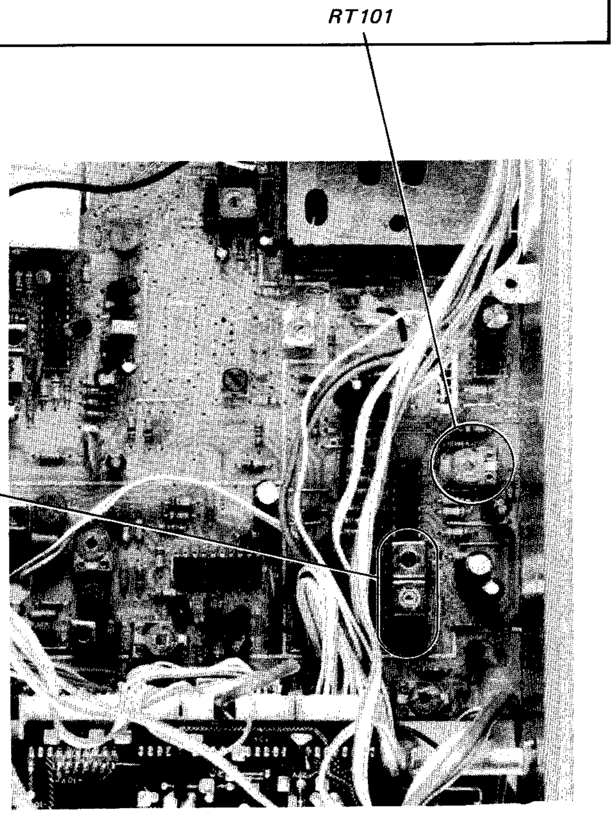


Photo : US, Canadian, E model

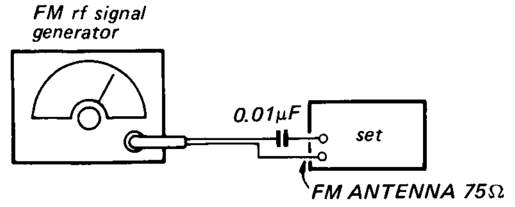
19kHz Adjustment

Setting:

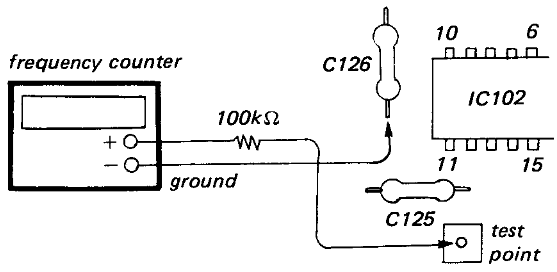
ST/MUTE switch: ON

A) Regular Method

Procedure:


FM rf signal generator
0.01μF
set
FM ANTENNA 75Ω

carrier frequency: 98MHz
Modulation: no modulation
Output level: 1mV (60dB)


frequency counter
+
−
100kΩ
ground
C126
10
6
IC102
11
15
C125
test point

1. Tune the set to 98 MHz.
2. Adjust RT102 for 19kHz ± 50Hz on the counter.

Adjustment Location: tuner board

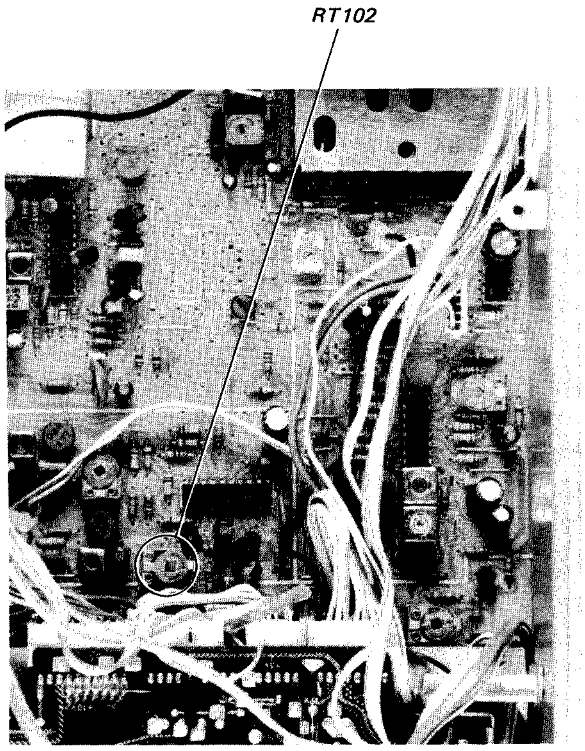
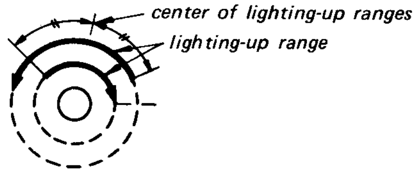


Photo: US, Canadian,
E model

B) Simple Method

Procedure:

1. Tune the set to the FM stereo broadcasting signal.
2. Turn RT102 clockwise or counterclockwise and memorize the lighting-up range of the stereo lamp.
3. Secure RT102 at the center of the lighting-up range of both turns as shown below.

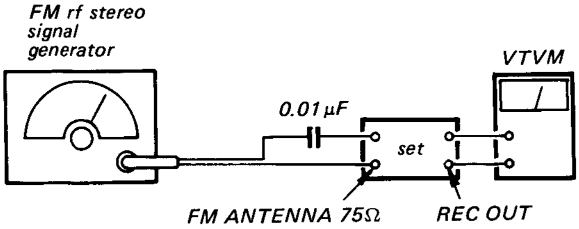

center of lighting-up ranges
lighting-up range

FM Stereo Separation Adjustment

Setting:

ST/MUTE switch: ON

Procedure:



Carrier frequency: 98 MHz
Output level: 1 mV (60 dB)
Mode: Stereo
Modulation:

AEP, UK model

Audio (1kHz): 16.25kHz deviation (40.6%)
Pilot (19kHz): 7.5kHz deviation (18.8%)
Sub-channel (38kHz): 16.25kHz deviation (40.6%)

US, Canadian, E model

Audio (1kHz): 33.75kHz deviation (45%)
Pilot (19kHz): 7.5kHz deviation (10%)
Sub-channel (38kHz): 33.75kHz deviation (45%)

FM stereo signal generator output channel	VTVM connection	VTVM reading (dB)
L-CH	L-CH	Ⓐ
R-CH	L-CH	Ⓑ Adjust RT103 for minimum reading.
R-CH	R-CH	Ⓒ
L-CH	R-CH	Ⓓ Adjust RT103 for minimum reading.

L-CH Stereo separation: Ⓐ – Ⓑ
R-CH Stereo separation: Ⓒ – Ⓓ

The separations of both channels should be equal.

Adjustment Location: tuner board

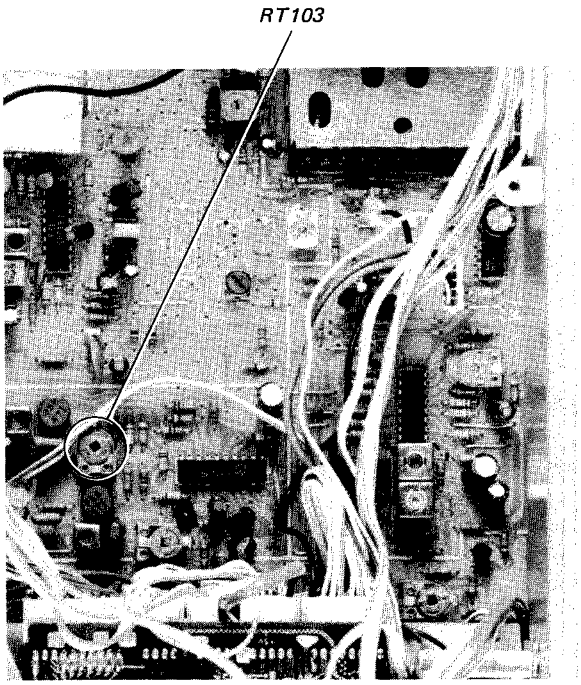


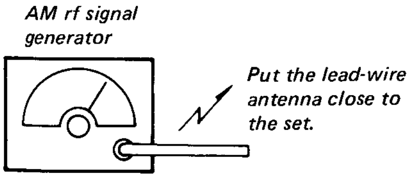
Photo: US, Canadian, E model

AM VCO Adjustment (US, Canadian, E model)
MW VCO Adjustment (AEP, UK model)

Setting:

AUTO TUNING switch: OFF

Procedure:


AM rf signal generator
Put the lead-wire antenna close to the set.

Carrier frequency: *US, Canadian model*
530kHz, 1610kHz
AEP, UK, E model
522kHz, 1602kHz

Modulation: *30% amplitude modulation by 400Hz signal*

Adjustment Location: tuner board

1. Tune the set to 530kHz (US, Canadian model), 522kHz (AEP, UK, E model).
2. Adjust the core of L003 for 1.55 – 1.65V DC reading on the VOM.
3. Tune the set to 1610kHz (US, Canadian model), 1602kHz (AEP, UK, E model).
4. Adjust CT002 for 23 – 25V DC reading on the VOM.
5. Repeat the adjustments several times.

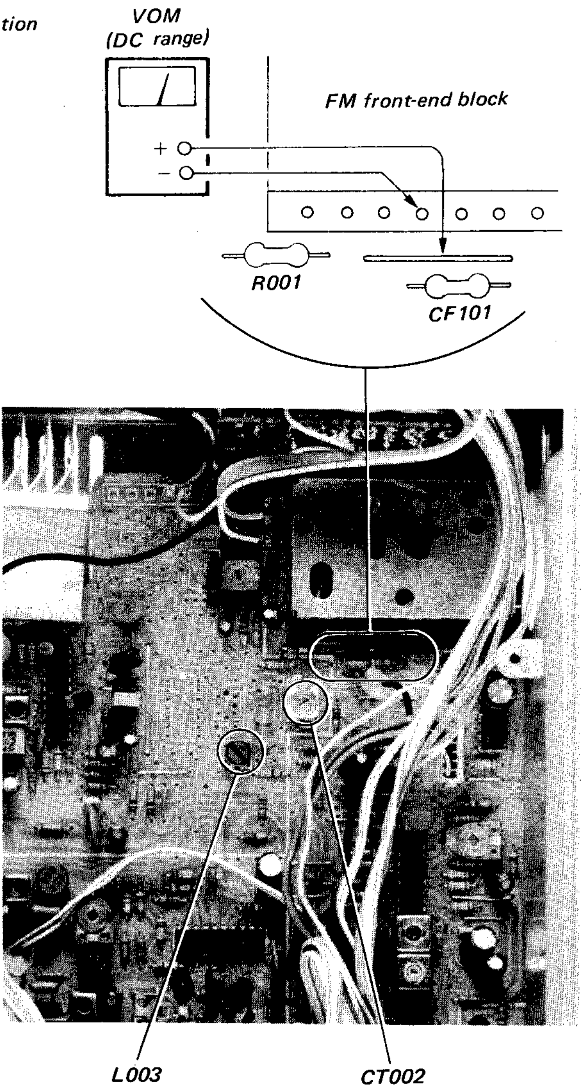

VOM
(DC range)
+
−
FM front-end block
R001
CF101
L003
CT002

Photo : US, Canadian, E model

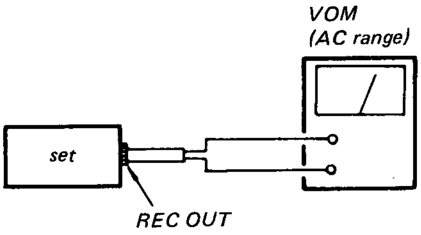
Note: MW tracking adjustment should be made after LW tracking adjustment.

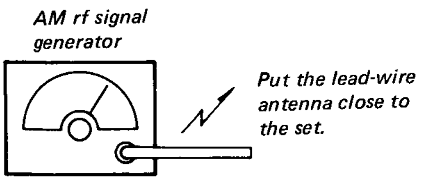
AM Tracking Adjustment (US, Canadian, E model)
MW Tracking Adjustment (AEP, UK model)

Setting:

ST/MUTE switch: OFF
AM CH. SPACE switch: 10kHz (US, Canadian model)

Procedure:


VOM
(AC range)
set
REC OUT


AM rf signal generator
Put the lead-wire antenna close to the set.

Carrier frequency:	*US, Canadian model* *600kHz, 1400kHz* *AEP, UK, E model* *603kHz, 1404kHz*
Modulation:	*30% amplitude modulation by 400Hz signal*
Output level:	*as low as possible*

1. Tune the set to 600kHz (US, Canadian model), 603kHz (AEP, UK, E model).
2. Adjust the coil of L001 for a maximum reading on the VOM.
3. Tune the set to 1400kHz (US, Canadian model), 1404kHz (AEP, UK, E model).
4. Adjust CT001 for a maximum reading on the VOM.
5. Repeat the adjustments several times.

Adjustment Location: tuner board

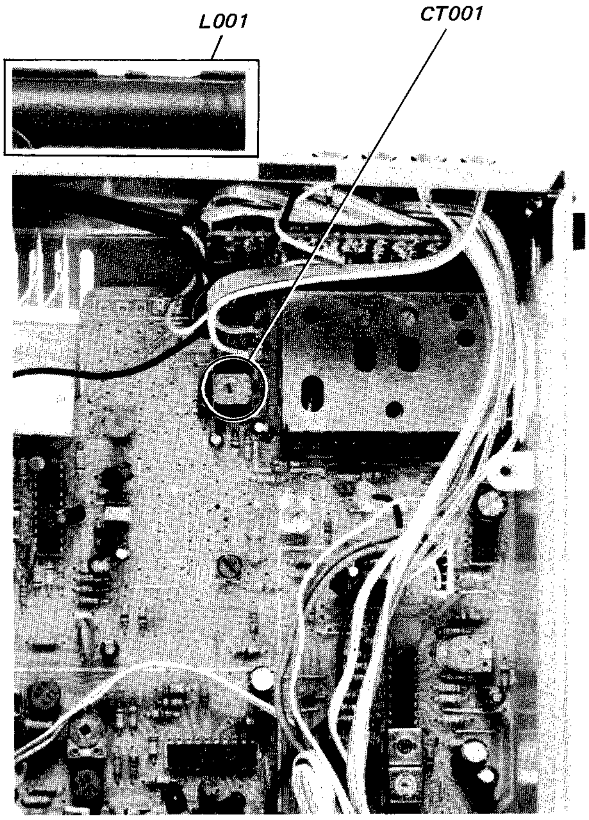


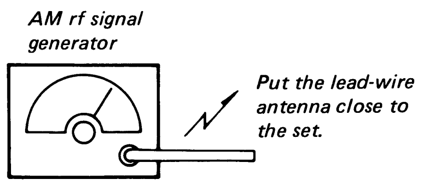
Photo: US, Canadian, E model

AM Muting Level Adjustment

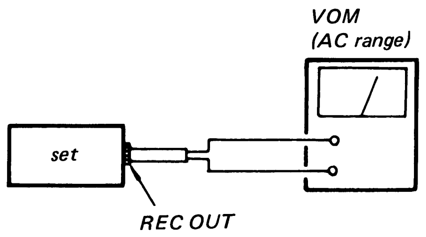
Setting:

ST/MUTE switch: ON

Procedure:


AM rf signal generator
Put the lead-wire antenna close to the set.

Carrier frequency: *US model*
1000kHz
Canadian, AEP, UK, E model
999kHz
Modulation: *30% amplitude modulation by 400Hz signal*
Output level: *0.56mV (55dB)*


VOM
(AC range)
set
REC OUT

1. Tune the set to 1000kHz (US model), 999kHz (Canadian, AEP, UK, E model).
2. Turn RT104 and stop it just when the VOM indication suddenly decreases (0V).

Adjustment Location: tuner board

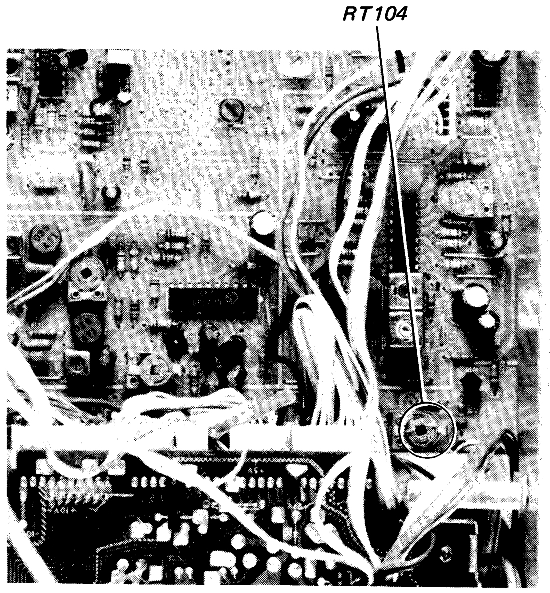


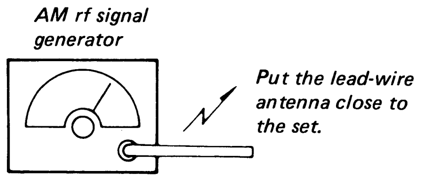
Photo : US, Canadian, E model

LW VCO Adjustment (AEP, UK model)

Setting:

AUTO TUNING switch: OFF
LW FREQ switch: LW1

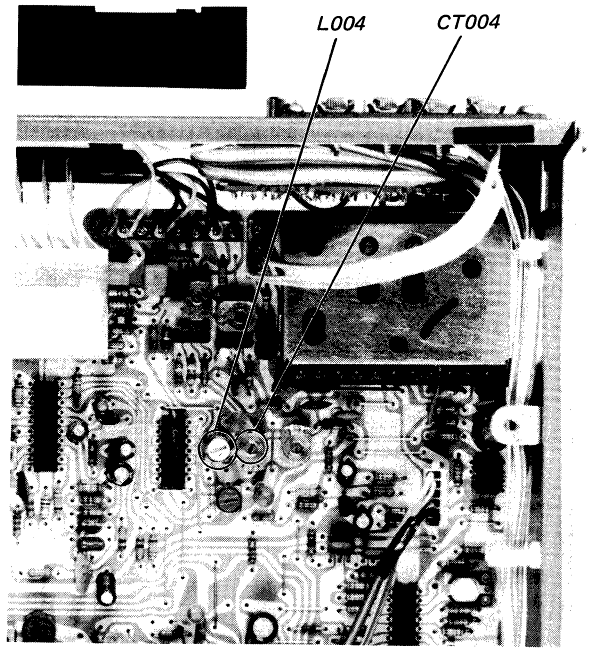
Procedure:


AM rf signal generator
Put the lead-wire antenna close to the set.

Carrier frequency: *155kHz*
344kHz
Modulation: *30% amplitude modulation by 400Hz signal*

1. Tune the set to 155kHz.
2. Adjust the core of L004 for 2.2 – 2.4V DC reading on the VOM.
3. Tune the set to 344kHz.
4. Adjust CT004 for 18 – 19V DC reading on the VOM.
5. Repeat the adjustments several times.

Adjustment Location: tuner board

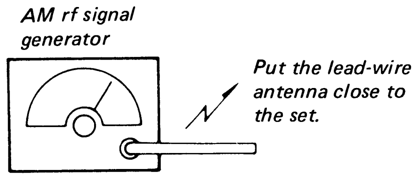


LW Tracking Adjustment (AEP, UK model)

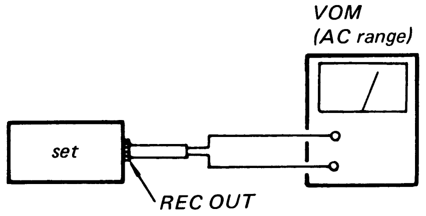
Setting:

ST/MUTE switch: OFF
LW FREQ switch: LW1

Procedure:

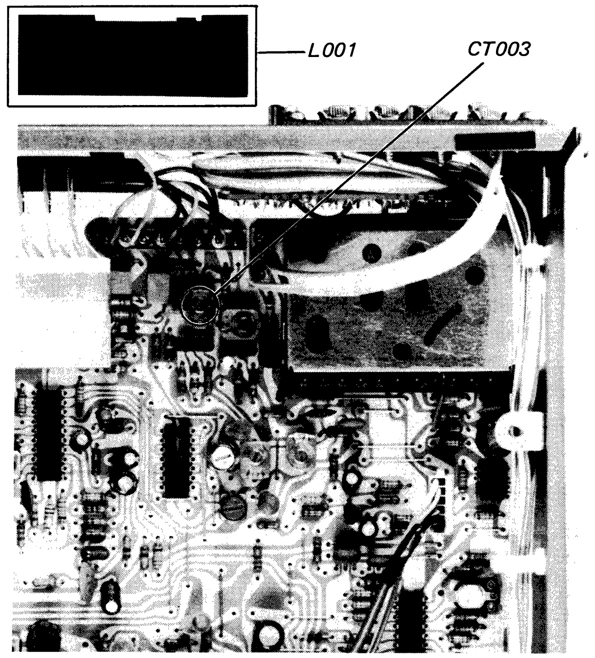

AM rf signal generator
Put the lead-wire antenna close to the set.

Carrier frequency: *173kHz*
308kHz
Modulation: *30% amplitude modulation by 400Hz signal*
Output level: *as low as possible*


VOM
(AC range)
set
REC OUT

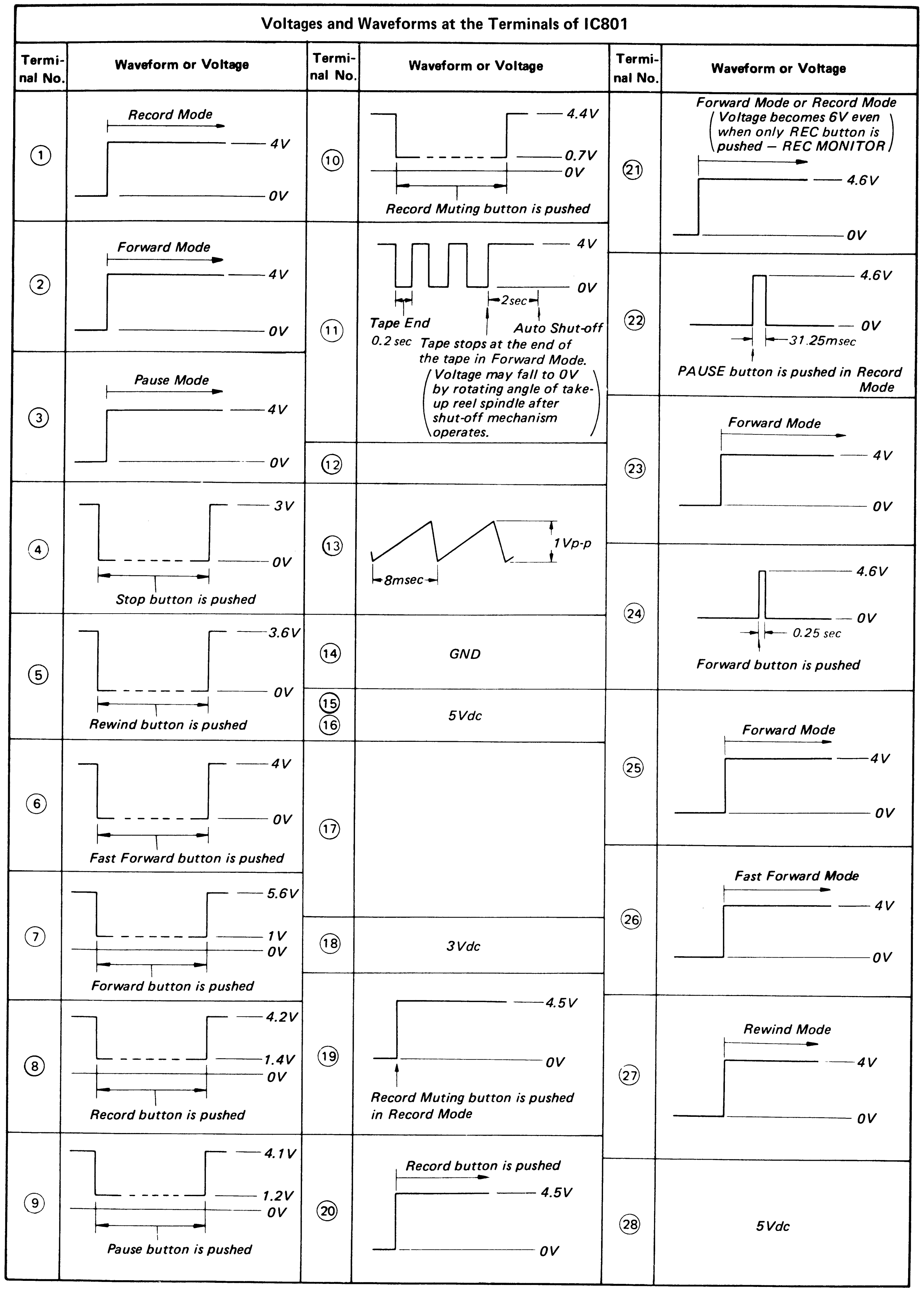
1. Tune the set to 173kHz.
2. Adjust the coil of L001 for a maximum reading on the VOM.
3. Tune the set to 308kHz.
4. Adjust CT003 for a maximum reading on the VOM.
5. Repeat the adjustments several times.

Adjustment Location: tuner board



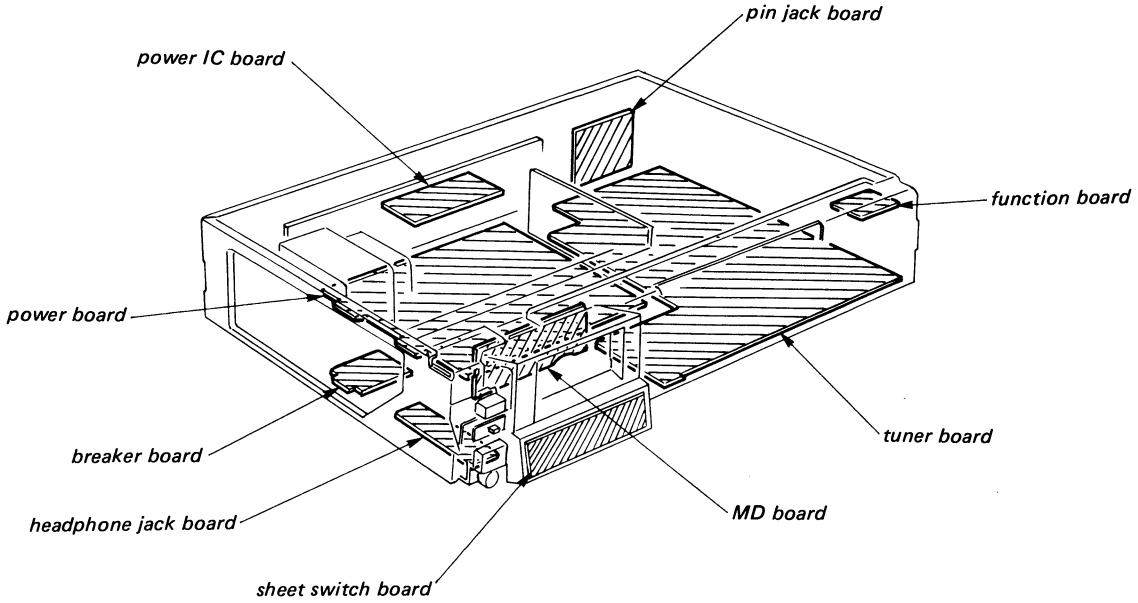
Termi-nal No
①
②
③
④
⑤
⑥
⑦
⑧
⑨

Voltages and Waveforms at the Terminals of IC801

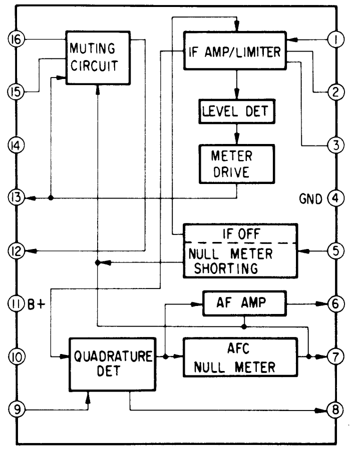


Terminal No.	Waveform or Voltage
①	*Record Mode* 4V 0V
②	*Forward Mode* 4V 0V
③	*Pause Mode* 4V 0V
④	3V 0V *Stop button is pushed*
⑤	3.6V 0V *Rewind button is pushed*
⑥	4V 0V *Fast Forward button is pushed*
⑦	5.6V 1V 0V *Forward button is pushed*
⑧	4.2V 1.4V 0V *Record button is pushed*
⑨	4.1V 1.2V 0V *Pause button is pushed*
⑩	4.4V 0.7V 0V *Record Muting button is pushed*
⑪	4V 0V 2sec *Tape End* 0.2 sec *Auto Shut-off* *Tape stops at the end of the tape in Forward Mode.* *(Voltage may fall to 0V by rotating angle of take-up reel spindle after shut-off mechanism operates.)*
⑫	
⑬	1Vp-p 8msec
⑭	*GND*
⑮ ⑯	*5Vdc*
⑰	
⑱	*3Vdc*
⑲	4.5V 0V *Record Muting button is pushed in Record Mode*
⑳	*Record button is pushed* 4.5V 0V
㉑	*Forward Mode or Record Mode* *(Voltage becomes 6V even when only REC button is pushed – REC MONITOR)* 4.6V 0V
㉒	4.6V 0V 31.25msec *PAUSE button is pushed in Record Mode*
㉓	*Forward Mode* 4V 0V
㉔	4.6V 0V 0.25 sec *Forward button is pushed*
㉕	*Forward Mode* 4V 0V
㉖	*Fast Forward Mode* 4V 0V
㉗	*Rewind Mode* 4V 0V
㉘	*5Vdc*

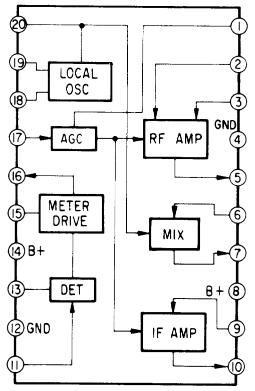
CIRCUIT BOARDS LOCATION


pin jack board
power IC board
function board
power board
tuner board
breaker board
headphone jack board
MD board
sheet switch board

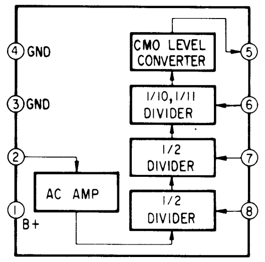
IC101


MUTING CIRCUIT
IF AMP/LIMITER
LEVEL DET
METER DRIVE
GND
IF OFF
NULL METER SHORTING
AF AMP
B+
QUADRATURE DET
AFC NULL METER
① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫ ⑬ ⑭ ⑮ ⑯

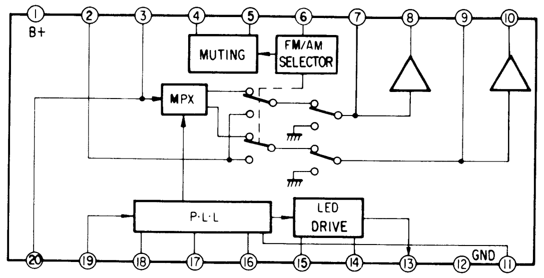
IC002


LOCAL OSC
AGC
RF AMP
GND
METER DRIVE
MIX
B+
DET
GND
B+
IF AMP
① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫ ⑬ ⑭ ⑮ ⑯ ⑰ ⑱ ⑲ ⑳

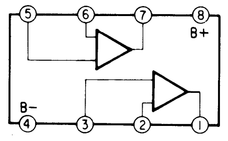
IC001


GND
GND
CMO LEVEL CONVERTER
1/10, 1/11 DIVIDER
1/2 DIVIDER
1/2 DIVIDER
AC AMP
B+
① ② ③ ④ ⑤ ⑥ ⑦ ⑧

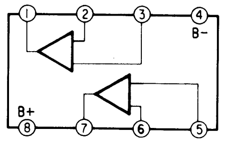
IC102


B+
MUTING
FM/AM SELECTOR
MPX
P·L·L
LED DRIVE
GND
① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫ ⑬ ⑭ ⑮ ⑯ ⑰ ⑱ ⑲ ⑳

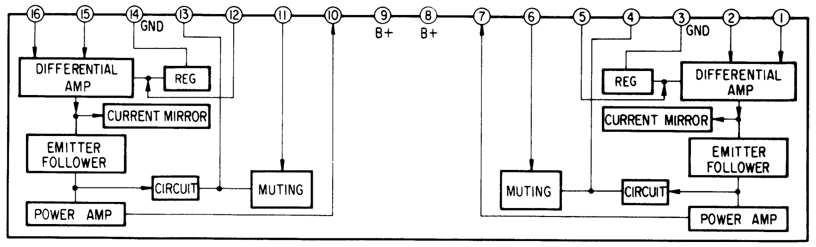
IC201,601


B+
B–
① ② ③ ④ ⑤ ⑥ ⑦ ⑧

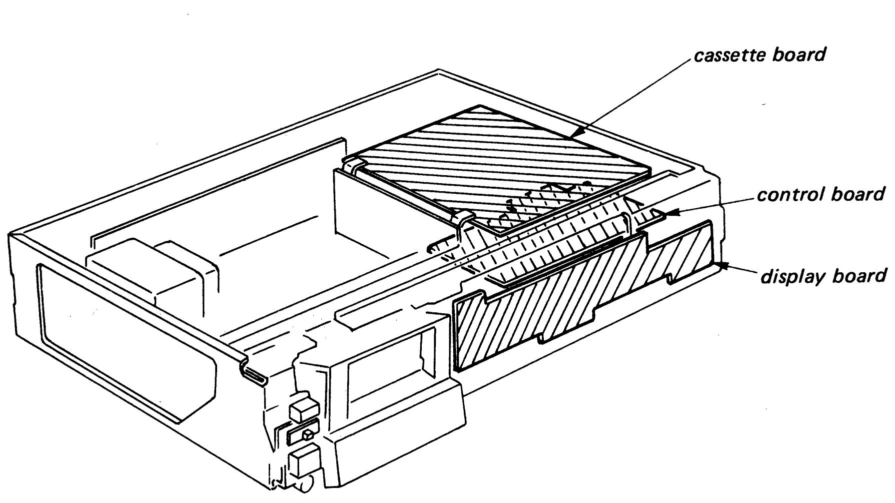
IC251


B–
B+
① ② ③ ④ ⑤ ⑥ ⑦ ⑧

IC651


GND
B+
B+
GND
DIFFERENTIAL AMP
REG
CURRENT MIRROR
EMITTER FOLLOWER
CIRCUIT
MUTING
POWER AMP
REG
DIFFERENTIAL AMP
CURRENT MIRROR
EMITTER FOLLOWER
MUTING
CIRCUIT
POWER AMP
① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫ ⑬ ⑭ ⑮ ⑯

CIRCUIT BOARDS LOCATION


cassette board
control board
display board

SECTION 4
DIAGRAMS

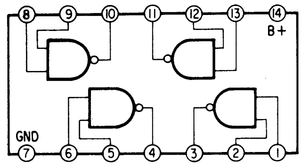
4-1. CASSETTE AMP, CONTROL, DISPLAY SECTION MOUNTING DIAGRAM

– Conductor Side –

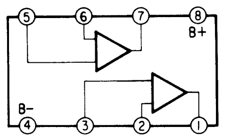
(US, Canadian, E model)

(Refer to page 58 for semiconductor lead layouts.)

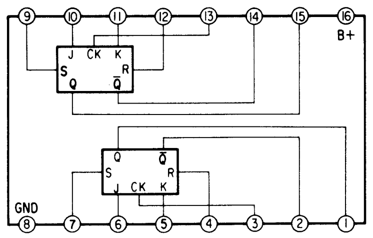
IC052



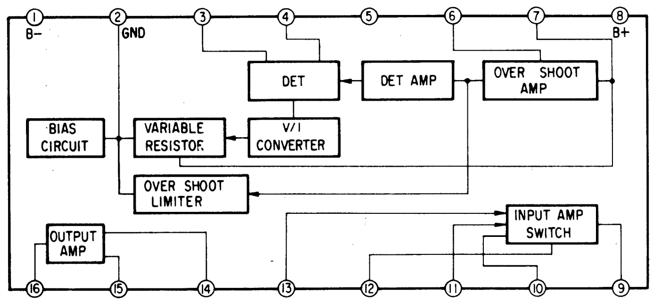
IC202,302,401



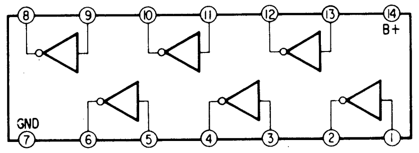
IC802


B+
GND
J CK K
S R
Q Q

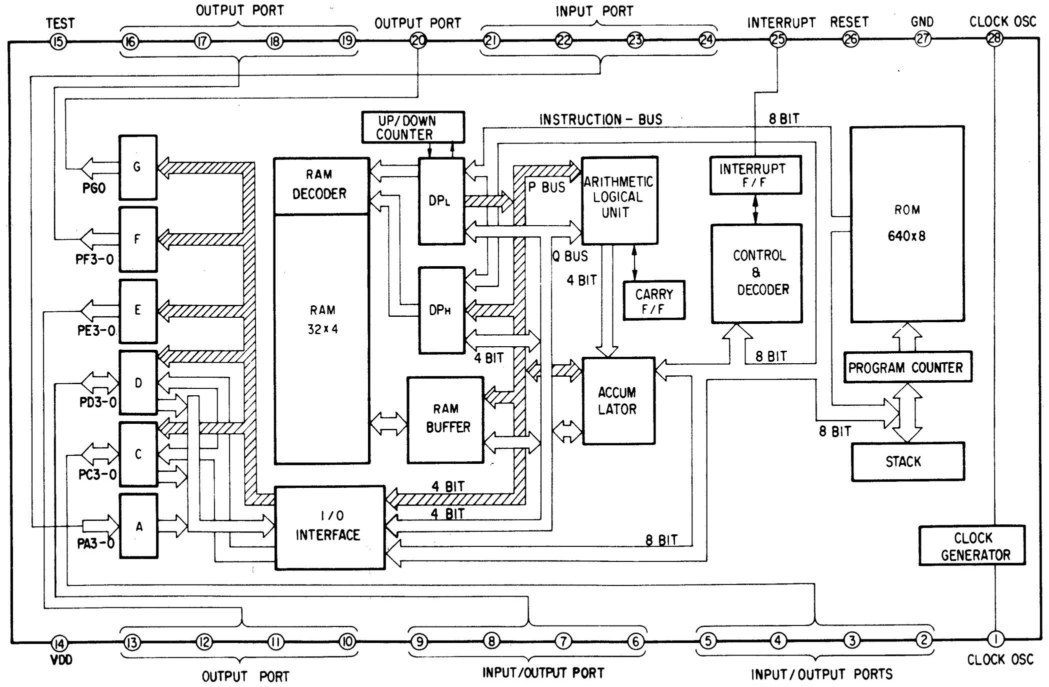
IC402,502


B-
GND
B+
DET
DET AMP
OVER SHOOT AMP
BIAS CIRCUIT
VARIABLE RESISTOR
V/I CONVERTER
OVER SHOOT LIMITER
OUTPUT AMP
INPUT AMP SWITCH

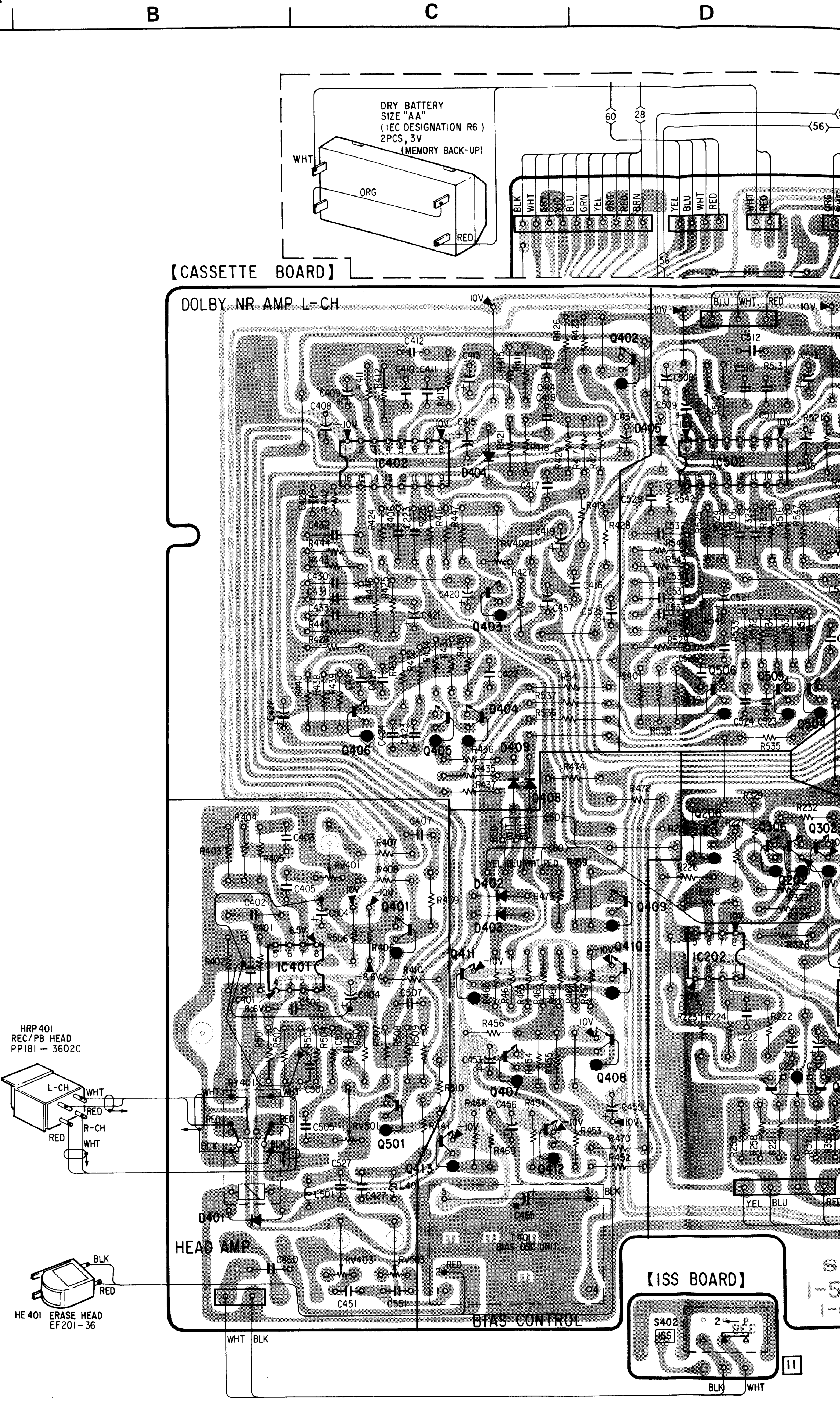
IC803



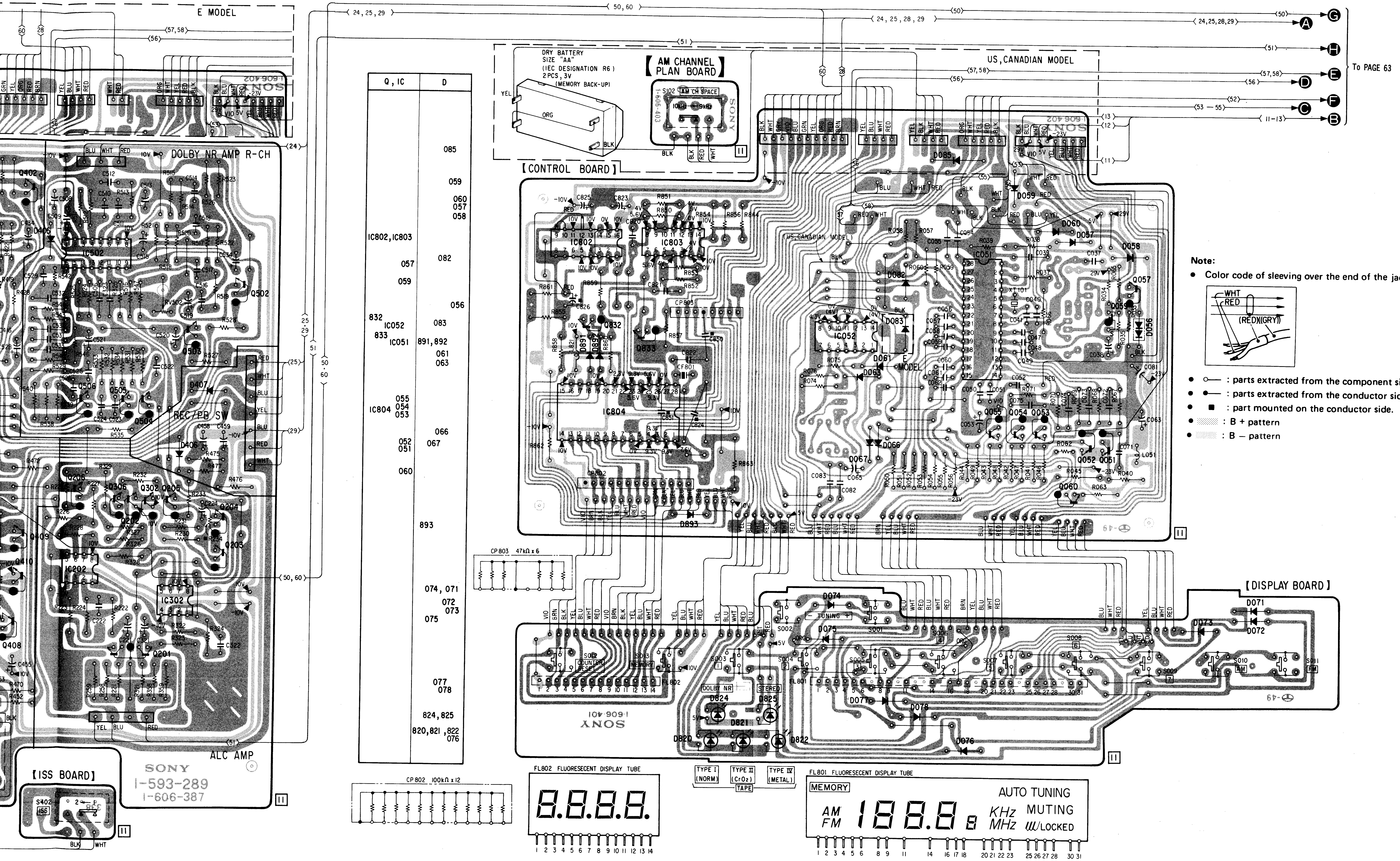
IC804


TEST
OUTPUT PORT
OUTPUT PORT
INPUT PORT
INTERRUPT
RESET
GND
CLOCK OSC
UP/DOWN COUNTER
INSTRUCTION – BUS
8 BIT
G
P60
F
PF3-0
E
PE3-0
D
PD3-0
C
PC3-0
A
PA3-0
RAM DECODER
RAM 32×4
DPL
DPH
P BUS
Q BUS
4 BIT
ARITHMETIC LOGICAL UNIT
CARRY F/F
INTERRUPT F/F
CONTROL & DECODER
ROM 640×8
PROGRAM COUNTER
STACK
RAM BUFFER
ACCUM LATOR
I/O INTERFACE
CLOCK GENERATOR
VDD
OUTPUT PORT
INPUT/OUTPUT PORT
INPUT/OUTPUT PORTS
CLOCK OSC

Q, IC	D	ADJ
402		
	404 405	
IC402,IC502		
502		502 402
403 503		
	407	
506,505 504 404 406,405		
	409,408 406	
206		
306,302 205		
202,204		401
	402 403	
409		
401,203		
IC202		
IC401 411,410		
IC302		
408 407 201		
501 413,412		501
	401	
		403 503


A
B
C
D
1
2
3
4
5
DRY BATTERY SIZE "AA" (IEC DESIGNATION R6) 2PCS, 3V (MEMORY BACK-UP)
WHT
ORG
RED
【CASSETTE BOARD】
DOLBY NR AMP L-CH
IC402
IC502
IC401
IC202
RV401
RV402
RV403
RV501
RV503
Q401
Q402
Q403
Q404
Q405
Q406
Q407
Q408
Q409
Q410
Q411
Q412
Q413
Q501
Q504
Q505
Q506
D401
D402
D403
D404
D405
D408
D409
HRP401 REC/PB HEAD PP181 – 3602C
L-CH
R-CH
HE401 ERASE HEAD EF201-36
HEAD AMP
T401 BIAS OSC UNIT
BIAS CONTROL
【ISS BOARD】
S402 ISS
BLK
WHT

Q, IC	D
	085
	059
	060 057 058
IC802, IC803	
057	082
059	
	056
832 IC052	083
833 IC051	891, 892
	061 063
055 IC804 054 053	
	066
052 051	067
060	
	893
	074, 071
	072 073
	075
	077 078
	824, 825
	820, 821, 822 076


E MODEL
DOLBY NR AMP R-CH
REC/PB SW
ALC AMP
【ISS BOARD】
S402 ISS
SONY
1-593-289
1-606-387
DRY BATTERY
SIZE "AA"
(IEC DESIGNATION R6)
2 PCS, 3V
(MEMORY BACK-UP)
【AM CHANNEL PLAN BOARD】
S102 AM CH SPACE
10kHz 9kHz
1-606-403
【CONTROL BOARD】
US, CANADIAN MODEL
(US, CANADIAN MODEL)
E MODEL
A B C D E F G H
To PAGE 63
CP803 47kΩ x 6
【DISPLAY BOARD】
TUNING
COUNTER RESET
MEMORY
DOLBY NR
STEREO
1-606-401
CP802 100kΩ x 12
FL802 FLUORESCENT DISPLAY TUBE
8.8.8.8.
1 2 3 4 5 6 7 8 9 10 11 12 13 14
TYPE I (NORM)
TYPE II (CrO2)
TYPE IV (METAL)
TAPE
FL801 FLUORESCENT DISPLAY TUBE
MEMORY
AUTO TUNING
AM FM
188.8
KHz MHz
MUTING
LOCKED
1 2 3 4 5 6 8 9 11 14 16 17 18 20 21 22 23 25 26 27 28 30 31
1 2 3 4 5

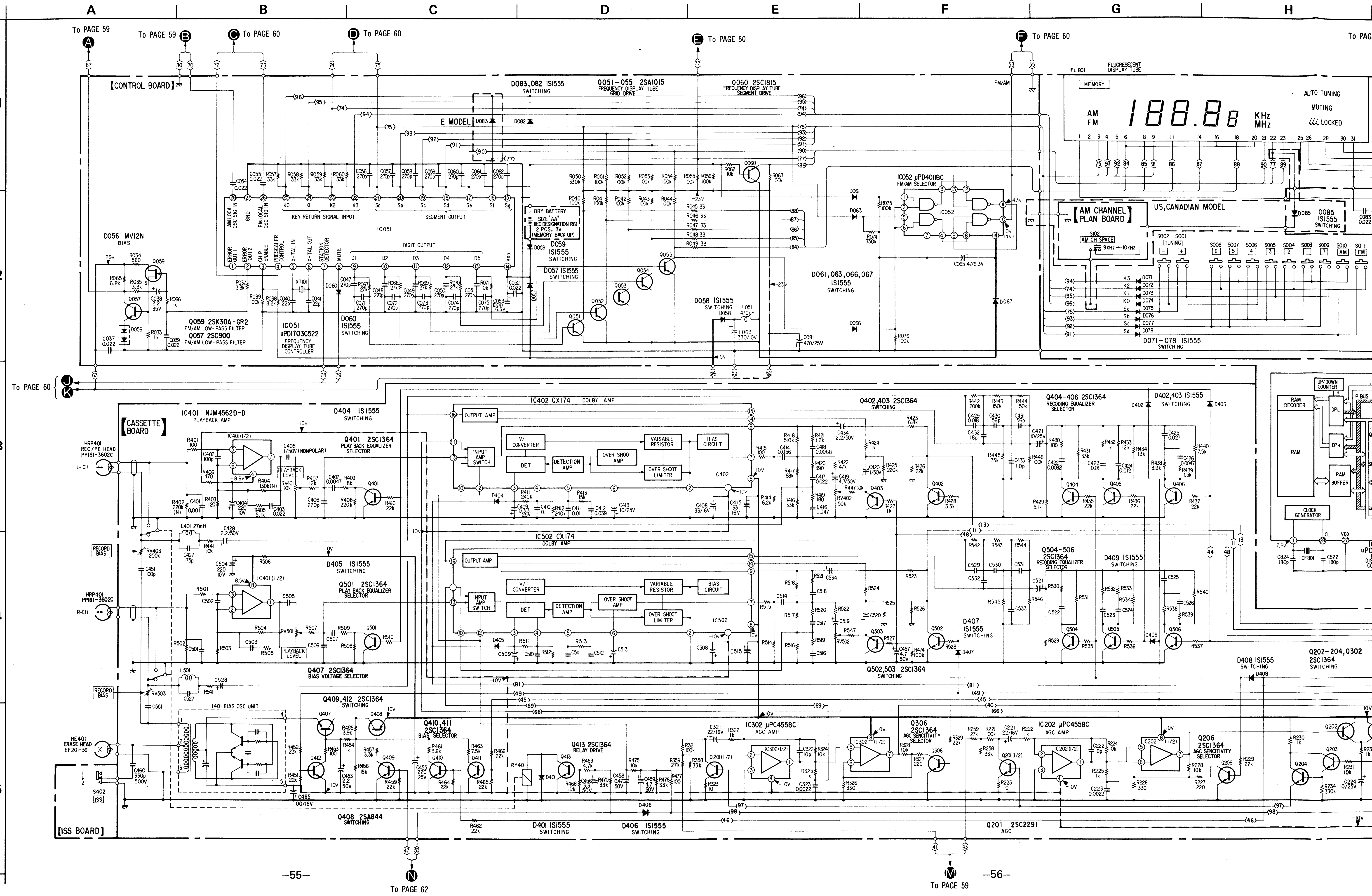
Note:

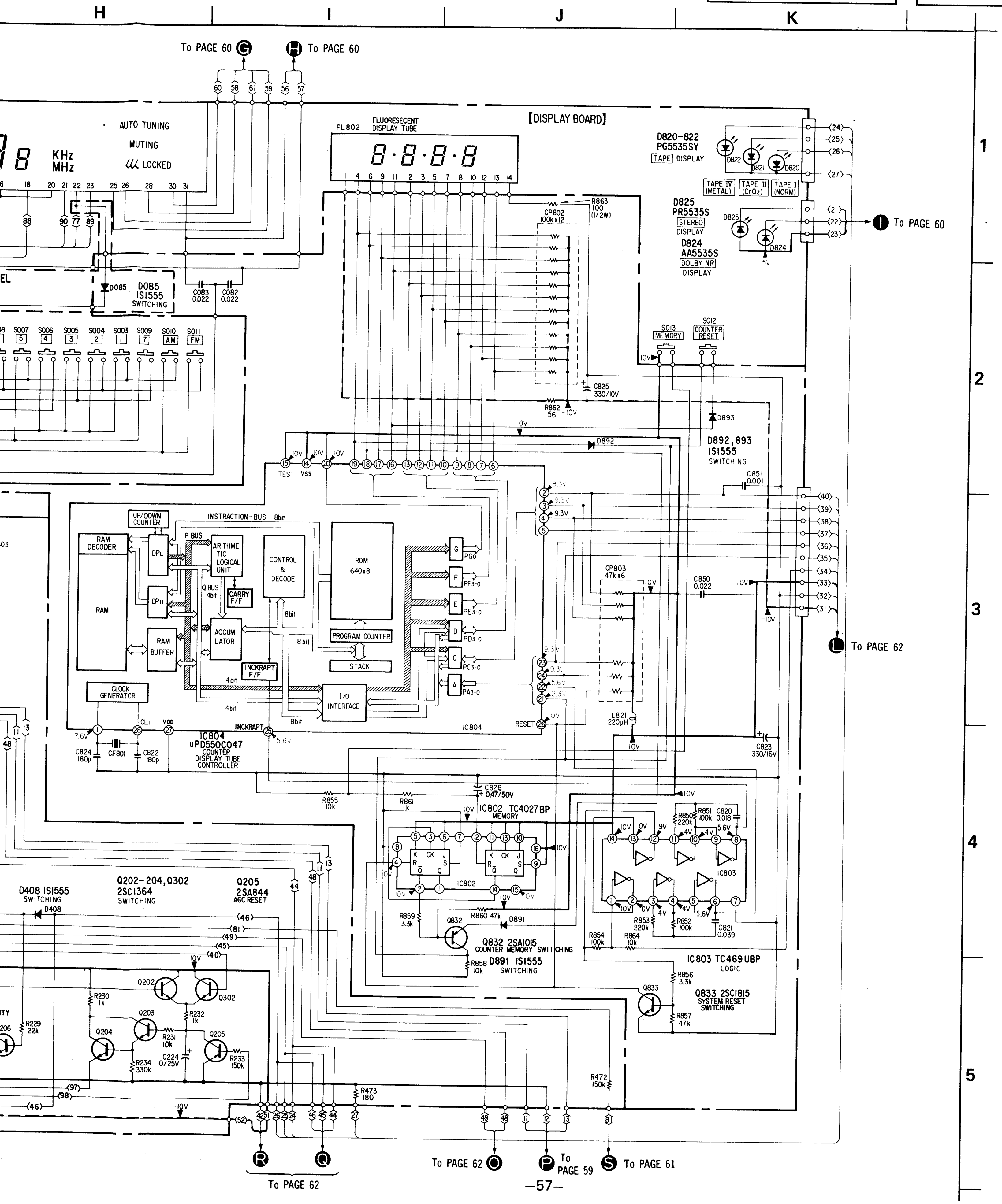
- Color code of sleeving over the end of the jacket.

WHT RED (RED)(GRY)

- ○— : parts extracted from the component side.
- ●— : parts extracted from the conductor side.
- ■ : part mounted on the conductor side.
- ▨ : B + pattern
- ▨ : B – pattern

4-2. CASSETTE AMP, CONTROL, DISPLAY SECTION SCHEMATIC DIAGRAM (US, Canadian, E model)


A
B
C
D
E
F
G
H
1
2
3
4
5
To PAGE 59 Ⓐ
To PAGE 59 Ⓑ
Ⓒ To PAGE 60
Ⓓ To PAGE 60
Ⓔ To PAGE 60
Ⓕ To PAGE 60
To PAGE 60 Ⓙ Ⓚ
Ⓝ To PAGE 62
Ⓜ To PAGE 59
【CONTROL BOARD】
D083,082 1S1555 SWITCHING
Q051-055 2SA1015 FREQUENCY DISPLAY TUBE GRID DRIVE
Q060 2SC1815 FREQUENCY DISPLAY TUBE SEGMENT DRIVE
FL801 FLUORESCENT DISPLAY TUBE
MEMORY
AM FM
188.88
KHz MHz
AUTO TUNING
MUTING
LOCKED
E MODEL
IC051
KEY RETURN SIGNAL INPUT
SEGMENT OUTPUT
DIGIT OUTPUT
AM LOCAL OSC SIG IN
GND
FM LOCAL OSC SIG IN
ERROR OUT 1
ERROR OUT 2
CHIP ENABLE
PRESCALER CONTROL
X-TAL IN
X-TAL OUT
STATION DETECTOR
MUTE
VDD
DRY BATTERY SIZE "AA" (IEC DESIGNATION R6) 2 PCS. 3V (MEMORY BACK UP)
D059 1S1555 SWITCHING
D057 1S1555 SWITCHING
D056 MV12N BIAS
Q059 2SK30A-GR2 FM/AM LOW-PASS FILTER
Q057 2SC900 FM/AM LOW-PASS FILTER
IC051 uPD1703C522 FREQUENCY DISPLAY TUBE CONTROLLER
D060 1S1555 SWITCHING
D058 1S1555 SWITCHING
L051 470μH
D061,063,066,067 1S1555 SWITCHING
IC052 μPD4011BC FM/AM SELECTOR
FM/AM
【AM CHANNEL PLAN BOARD】
US,CANADIAN MODEL
S102 AM CH SPACE 9kHz ⇄ 10kHz
D085 1S1555 SWITCHING
S002 S001 TUNING
S008 S007 S006 S005 S004 S003 S009 S010 S011
D071-078 1S1555 SWITCHING
【CASSETTE BOARD】
HRP401 REC/PB HEAD PP181-3602C
L-CH
R-CH
HRP401 PP181-3602C
IC401 NJM4562D-D PLAYBACK AMP
IC401(1/2)
D404 1S1555 SWITCHING
Q401 2SC1364 PLAY BACK EQUALIZER SELECTOR
PLAYBACK LEVEL
IC402 CX174 DOLBY AMP
OUTPUT AMP
INPUT AMP SWITCH
V/I CONVERTER
DET
DETECTION AMP
OVER SHOOT AMP
VARIABLE RESISTOR
BIAS CIRCUIT
OVER SHOOT LIMITER
IC502 CX174 DOLBY AMP
D405 1S1555 SWITCHING
Q501 2SC1364 PLAY BACK EQUALIZER SELECTOR
Q402,403 2SC1364 SWITCHING
Q404-406 2SC1364 RECORDING EQUALIZER SELECTOR
D402,403 1S1555 SWITCHING
Q504-506 2SC1364 RECORDING EQUALIZER SELECTOR
D409 1S1555 SWITCHING
D407 1S1555 SWITCHING
Q502,503 2SC1364 SWITCHING
RECORD BIAS
RV403 200k
L401 27mH
L501
RV503
Q407 2SC1364 BIAS VOLTAGE SELECTOR
T401 BIAS OSC UNIT
Q409,412 2SC1364 SWITCHING
Q410,411 2SC1364 BIAS SELECTOR
Q413 2SC1364 RELAY DRIVE
RY401
HE401 ERASE HEAD EF201-36
S402 ISS
[ISS BOARD]
Q408 2SA844 SWITCHING
D401 1S1555 SWITCHING
D406 1S1555 SWITCHING
IC302 μPC4558C AGC AMP
IC302(1/2)
Q306 2SC1364 AGC SENCITIVITY SELECTOR
IC202 μPC4558C AGC AMP
IC202(1/2)
Q206 2SC1364 AGC SENCITIVITY SELECTOR
Q201 2SC2291 AGC
D408 1S1555 SWITCHING
Q202-204,Q302 2SC1364 SWITCHING
UP/DOWN COUNTER
RAM DECODER
RAM
DPL
DPH
RAM BUFFER
CLOCK GENERATOR
CF801


H
I
J
K
1
2
3
4
5
To PAGE 60 G
H To PAGE 60
AUTO TUNING
MUTING
LOCKED
KHz
MHz
FL802 FLUORESECENT DISPLAY TUBE
[DISPLAY BOARD]
D820-822 PG5535SY TAPE DISPLAY
D825 PR5535S STEREO DISPLAY
D824 AA5535S DOLBY NR DISPLAY
TAPE IV (METAL)
TAPE II (CrO2)
TAPE I (NORM)
R863 100 (1/2W)
CP802 100k x12
To PAGE 60
D085 1S1555 SWITCHING
C083 0.022
C082 0.022
S013 MEMORY
S012 COUNTER RESET
C825 330/10V
R862 56
D893
D892
D892,893 1S1555 SWITCHING
C851 0.001
TEST
VSS
UP/DOWN COUNTER
INSTRACTION-BUS 8bit
RAM DECODER
RAM
DPL
DPH
RAM BUFFER
P BUS
ARITHMETIC LOGICAL UNIT
Q BUS 4bit
CARRY F/F
ACCUMLATOR
INCKRAPT F/F
CONTROL & DECODE
ROM 640x8
PROGRAM COUNTER
STACK
I/O INTERFACE
CLOCK GENERATOR
IC804 uPD550C047 COUNTER DISPLAY TUBE CONTROLLER
C824 180p
CF801
C822 180p
CP803 47k x6
C850 0.022
L821 220μH
C823 330/16V
To PAGE 62 L
R855 10k
R861 1k
C826 0.47/50V
IC802 TC4027BP MEMORY
R851 100k
C820 0.018
R850 220k
IC803
R859 3.3k
Q832
R860 47k
D891
Q832 2SA1015 COUNTER MEMORY SWITCHING
R858 10k
D891 1S1555 SWITCHING
R854 100k
R864 10k
R853 220k
R852 100k
C821 0.039
IC803 TC4069UBP LOGIC
R856 3.3k
Q833
Q833 2SC1815 SYSTEM RESET SWITCHING
R857 47k
D408 1S1555 SWITCHING
Q202-204,Q302 2SC1364 SWITCHING
Q205 2SA844 AGC RESET
R230 1k
R229 22k
R232 1k
R231 10k
R234 330k
C224 10/25V
R233 150k
R472 150k
R473 180
To PAGE 62
R
Q
To PAGE 62 O
P To PAGE 59
S To PAGE 61

Note:

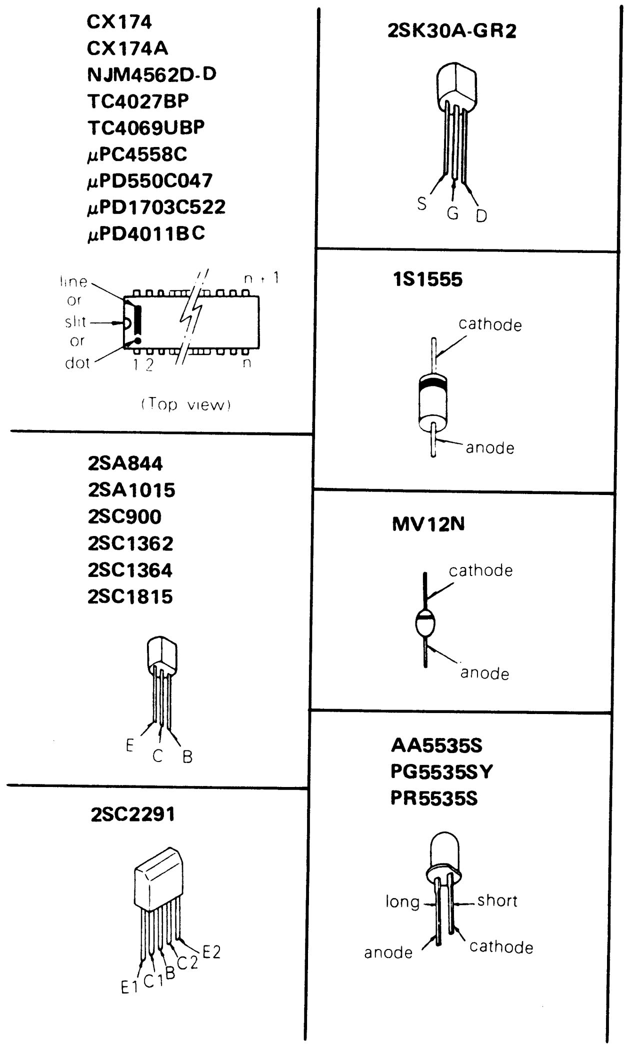
- Components for right channel have same values as for left channel.
- All capacitors are in μF unless otherwise noted. pF : $\mu\mu$F 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in ohms, ¼ W unless otherwise noted. kΩ : 1000 Ω, MΩ : 1000 kΩ
- ☐ : adjustment for repair.
- ——— : B+ bus.
- – – – : B- bus.
- Voltages are dc with respect to ground unless otherwise noted.
- Readings are taken under FM detuned conditions.
- Voltage variations may be noted due to normal production tolerances.

Note: Voltages are measured with a VOM (50kΩ/V).

- Switch

Ref. No.	Switch	Position
S001	TUNING +	OFF
S002	TUNING –	OFF
S003	1	OFF
S004	2	OFF
S005	3	OFF
S006	4	OFF
S007	5	OFF
S008	6	OFF
S009	7	OFF
S010	AM	OFF
S011	FM	OFF
S012	COUNTER RESET	OFF
S013	MEMORY	OFF
S102	AM CH SPACE	10kHz
S402	ISS	1

Semiconductor Lead Layouts


CX174
CX174A
NJM4562D-D
TC4027BP
TC4069UBP
μPC4558C
μPD550C047
μPD1703C522
μPD4011BC
line or slit or dot
1 2
n
n+1
(Top view)
2SK30A-GR2
S G D
1S1555
cathode
anode
2SA844
2SA1015
2SC900
2SC1362
2SC1364
2SC1815
E C B
MV12N
cathode
anode
2SC2291
E1 C1 B C2 E2
AA5535S
PG5535SY
PR5535S
long
short
anode
cathode

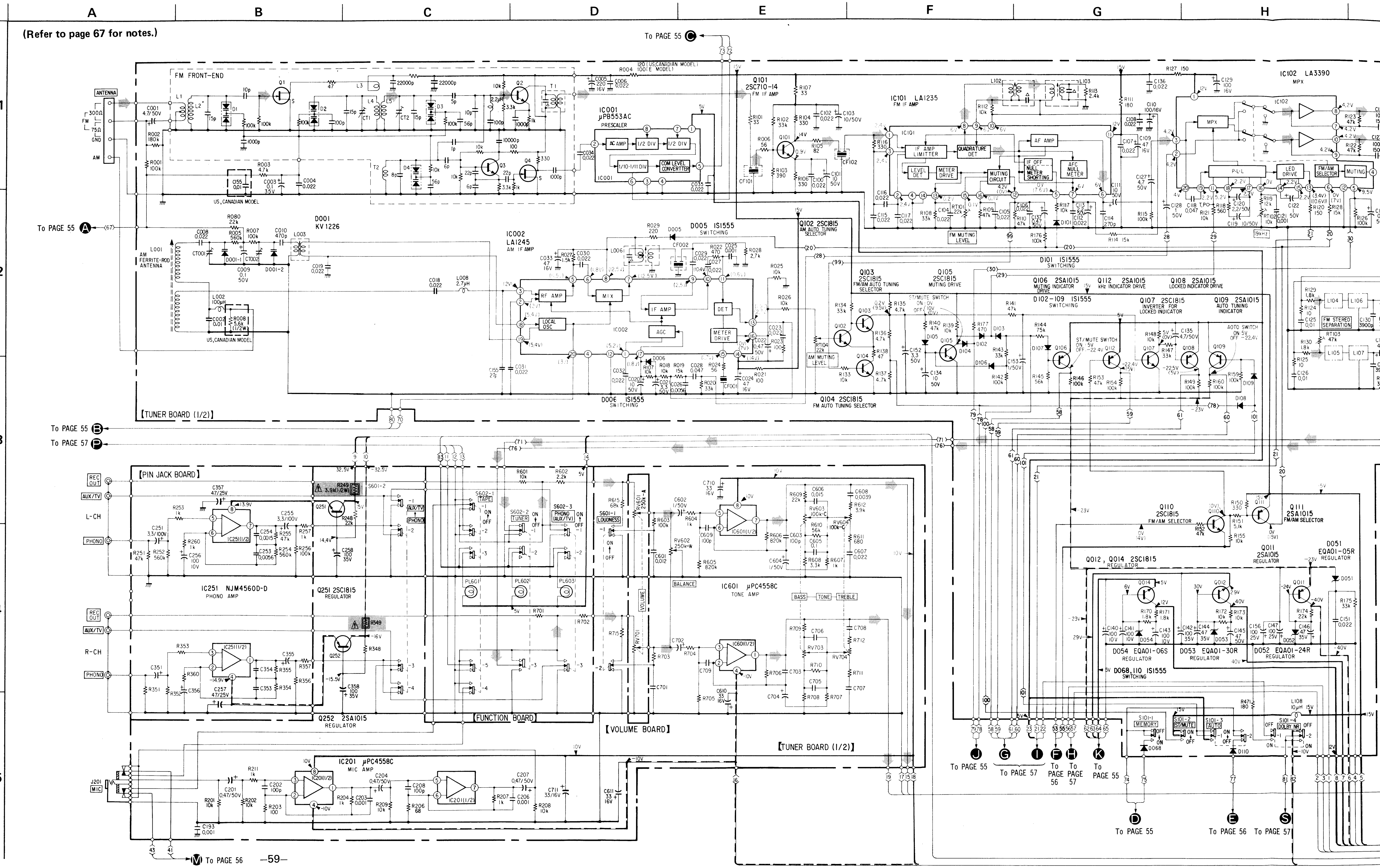
4-3. TUNER, POWER AMP, POWER SUPPLY SECTION SCHEMATIC DIAGRAM (US, Canadian, E model)

US, Canadian, E Model

XO-7 XO-7

US, Canadian, E Model

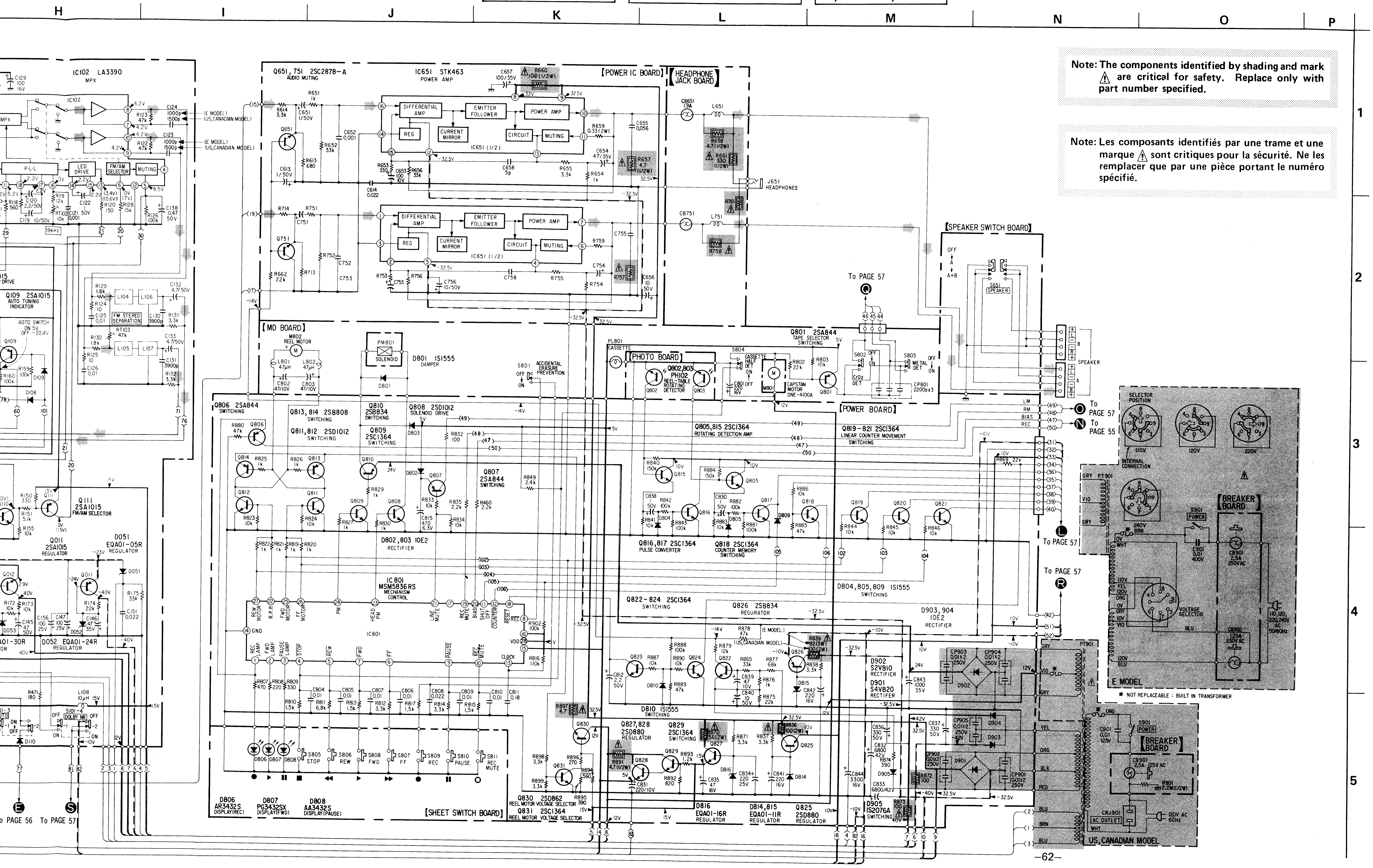
(Refer to page 67 for notes.)



A
B
C
D
E
F
G
H
1
2
3
4
5
To PAGE 55 C
FM FRONT-END
ANTENNA
FM 300Ω
75Ω
GND
AM
US, CANADIAN MODEL
IC001 μPB553AC PRESCALER
AC AMP
1/2 DIV
1/10-1/11 DIV
COM LEVEL CONVERTTER
Q101 2SC710-14 FM IF AMP
IC101 LA1235 FM IF AMP
IF AMP LIMITTER
QUADRATURE DET
AF AMP
LEVEL DET
METER DRIVE
MUTING CIRCUIT
IF OFF NULL METER SHORTING
AFC NULL METER
FM MUTING LEVEL
IC102 LA3390 MPX
MPX
P-L-L
LED DRIVE
FM/AM SELECTOR
MUTING
To PAGE 55 A
D001 KV1226
L001 AM FERRITE-ROD ANTENNA
IC002 LA1245 AM IF AMP
D005 1S1555 SWITCHING
RF AMP
MIX
LOCAL OSC
IF AMP
AGC
DET
METER DRIVE
Q102 2SC1815 AM AUTO TUNING SELECTOR
Q103 2SC1815 FM/AM AUTO TUNING SELECTOR
Q105 2SA1015 MUTING DRIVE
D101 1S1555 SWITCHING
Q106 2SA1015 MUTING INDICATOR
Q112 2SA1015 kHz INDICATOR DRIVE
Q108 2SA1015 LOCKED INDICATOR DRIVE
D102-109 1S1555 SWITCHING
Q107 2SC1815 INVERTER FOR LOCKED INDICATOR
Q109 2SA1015 AUTO TUNING INDICATOR
ST/MUTE SWITCH
AUTO SWITCH
AM MUTING LEVEL
D006 1S1555 SWITCHING
Q104 2SC1815 FM AUTO TUNING SELECTOR
FM STEREO SEPARATION
[TUNER BOARD (1/2)]
To PAGE 55 B
To PAGE 57 P
[PIN JACK BOARD]
REC OUT
AUX/TV
L-CH
PHONO
R-CH
IC251 NJM4560D-D PHONO AMP
Q251 2SC1815 REGULATOR
Q252 2SA1015 REGULATOR
S602-1 TAPE
S602-2 TUNER
S602-3 PHONO (AUX/TV)
PL601
PL602
PL603
[FUNCTION BOARD]
S601-1 LOUDNESS
RV601 250k-A
VOLUME
RV602 250k-W
BALANCE
IC601 μPC4558C TONE AMP
BASS
TONE
TREBLE
[VOLUME BOARD]
[TUNER BOARD (1/2)]
Q110 2SC1815 FM/AM SELECTOR
Q111 2SA1015 FM/AM SELECTOR
Q012, Q014 2SC1815 REGULATOR
Q011 2SA1015 REGULATOR
D051 EQA01-05R REGULATOR
D054 EQA01-06S REGULATOR
D053 EQA01-30R REGULATOR
D052 EQA01-24R REGULATOR
D068, 110 1S1555 SWITCHING
S101-1 MEMORY
S101-2 ST/MUTE
S101-3 AUTO
S101-4 DOLBY NR
J201 MIC
IC201 μPC4558C MIC AMP
To PAGE 55 J
To PAGE 57 G
To PAGE 56 F
To PAGE 57 H
To PAGE 55 K
To PAGE 55 D
To PAGE 56 E
To PAGE 57 S
To PAGE 56 M

Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

Note: Les composants identifiés par une trame et une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

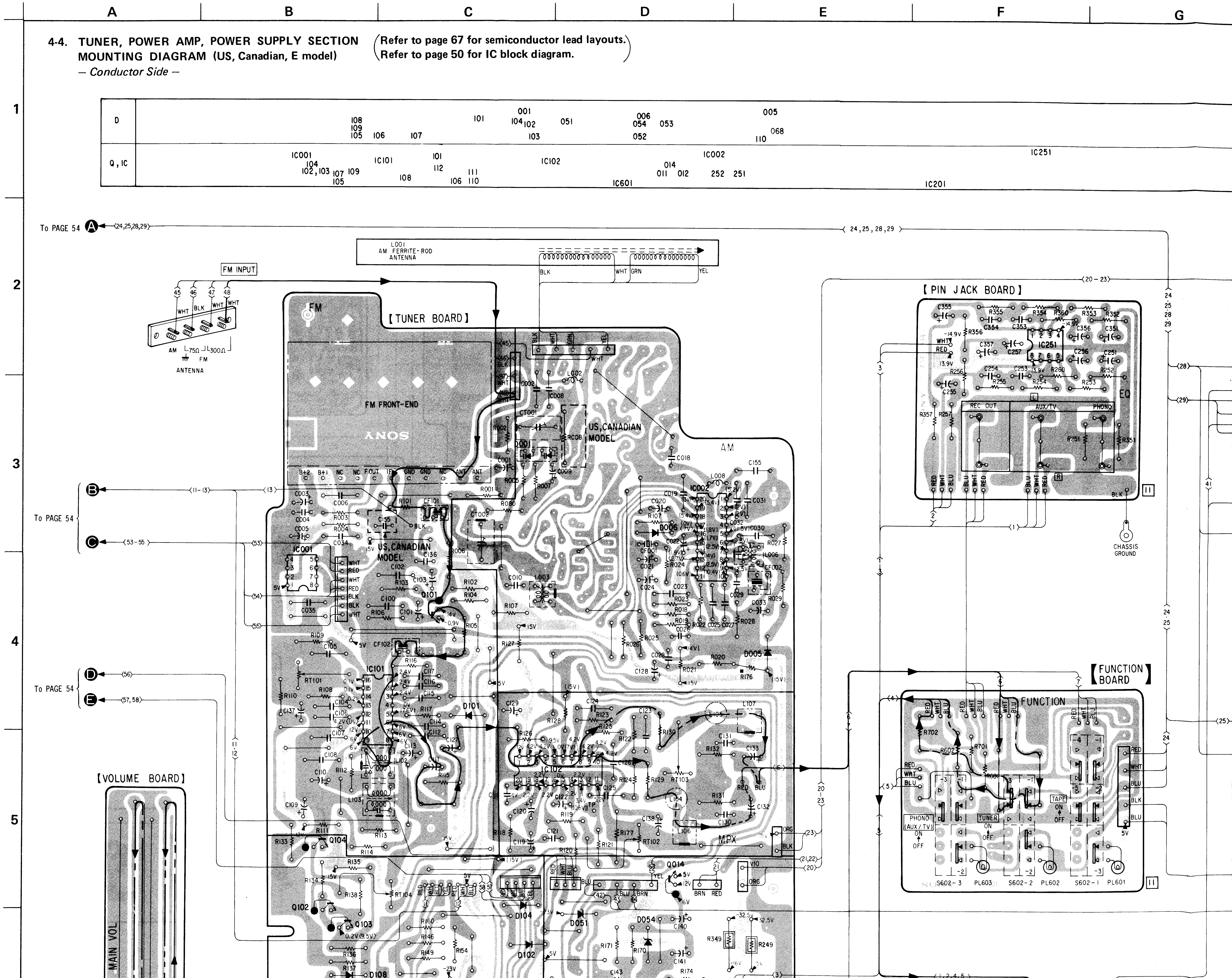

H
I
J
K
L
M
N
O
P
1
2
3
4
5
IC102 LA3390 MPX
Q651, 751 2SC2878-A AUDIO MUTING
IC651 STK463 POWER AMP
[POWER IC BOARD]
[HEADPHONE JACK BOARD]
DIFFERENTIAL AMP
EMITTER FOLLOWER
POWER AMP
REG
CURRENT MIRROR
CIRCUIT
MUTING
IC651 (1/2)
J651 HEADPHONES
[SPEAKER SWITCH BOARD]
S651 SPEAKER
SPEAKER
To PAGE 57
To PAGE 55
To PAGE 56
Q109 2SA1015 AUTO TUNING INDICATOR
AUTO SWITCH
FM STEREO SEPARATION
Q111 2SA1015 FM/AM SELECTOR
Q011 2SA1015 REGULATOR
D051 EQA01-05R REGULATOR
D052 EQA01-24R REGULATOR
[MD BOARD]
M802 REEL MOTOR
PM801 SOLENOID
D801 1S1555 DAMPER
S801 ACCIDENTAL ERASURE PREVENTION
PL801 CASSETTE
[PHOTO BOARD]
Q802,803 PH102 REEL-TABLE ROTATING DETECTOR
S804 CASSETTE HALF DET
CAPSTAN MOTOR DNE-4100A
Q801 2SA844 TAPE SELECTOR SWITCHING
S802 CrO2 DET
S803 METAL DET
[POWER BOARD]
Q806 2SA844 SWITCHING
Q813, 814 2SB808 SWITCHING
Q811, 812 2SD1012 SWITCHING
Q810 2SB834 SWITCHING
Q809 2SC1364 SWITCHING
Q808 2SD1012 SOLENOID DRIVE
Q807 2SA844 SWITCHING
Q805,815 2SC1364 ROTATING DETECTION AMP
Q819-821 2SC1364 LINEAR COUNTER MOVEMENT SWITCHING
Q816,817 2SC1364 PULSE CONVERTER
Q818 2SC1364 COUNTER MEMORY SWITCHING
D802,803 10E2 RECTIFIER
IC801 MSM5836RS MECHANISM CONTROL
D804,805,809 1S1555 SWITCHING
Q822-824 2SC1364 SWITCHING
Q826 2SB834 REGULATOR
D903, 904 10E2 RECTIFIER
D902 S2VB10 RECTIFIER
D901 S4VB20 RECTIFIER
D810 1S1555 SWITCHING
Q827,828 2SD880 REGULATOR
Q829 2SC1364 SWITCHING
Q830 2SD862 REEL MOTOR VOLTAGE SELECTOR
Q831 2SC1364 REEL MOTOR VOLTAGE SELECTOR
D816 EQA01-16R REGULATOR
D814,815 EQA01-11R REGULATOR
Q825 2SD880 REGULATOR
D905 1S2076A SWITCHING
[SHEET SWITCH BOARD]
S805 STOP
S806 REW
S808 FWD
S807 FF
S809 REC
S810 PAUSE
S811 REC MUTE
D806 AR3432S DISPLAY(REC)
D807 PG3432SX DISPLAY(FWD)
D808 AA3432S DISPLAY(PAUSE)
SELECTOR POSITION
110V
120V
220V
240V
INTERNAL CONNECTION
[BREAKER BOARD]
S901 POWER
CB901 2.5A 250VAC
VOLTAGE SELECTOR
PT901
E MODEL
US, CANADIAN MODEL
CN901 AC OUTLET
120V AC 60Hz
110,120,220,240V AC 50/60Hz
✱ NOT REPLACEABLE : BUILT IN TRANSFORMER

4-4. TUNER, POWER AMP, POWER SUPPLY SECTION MOUNTING DIAGRAM (US, Canadian, E model)

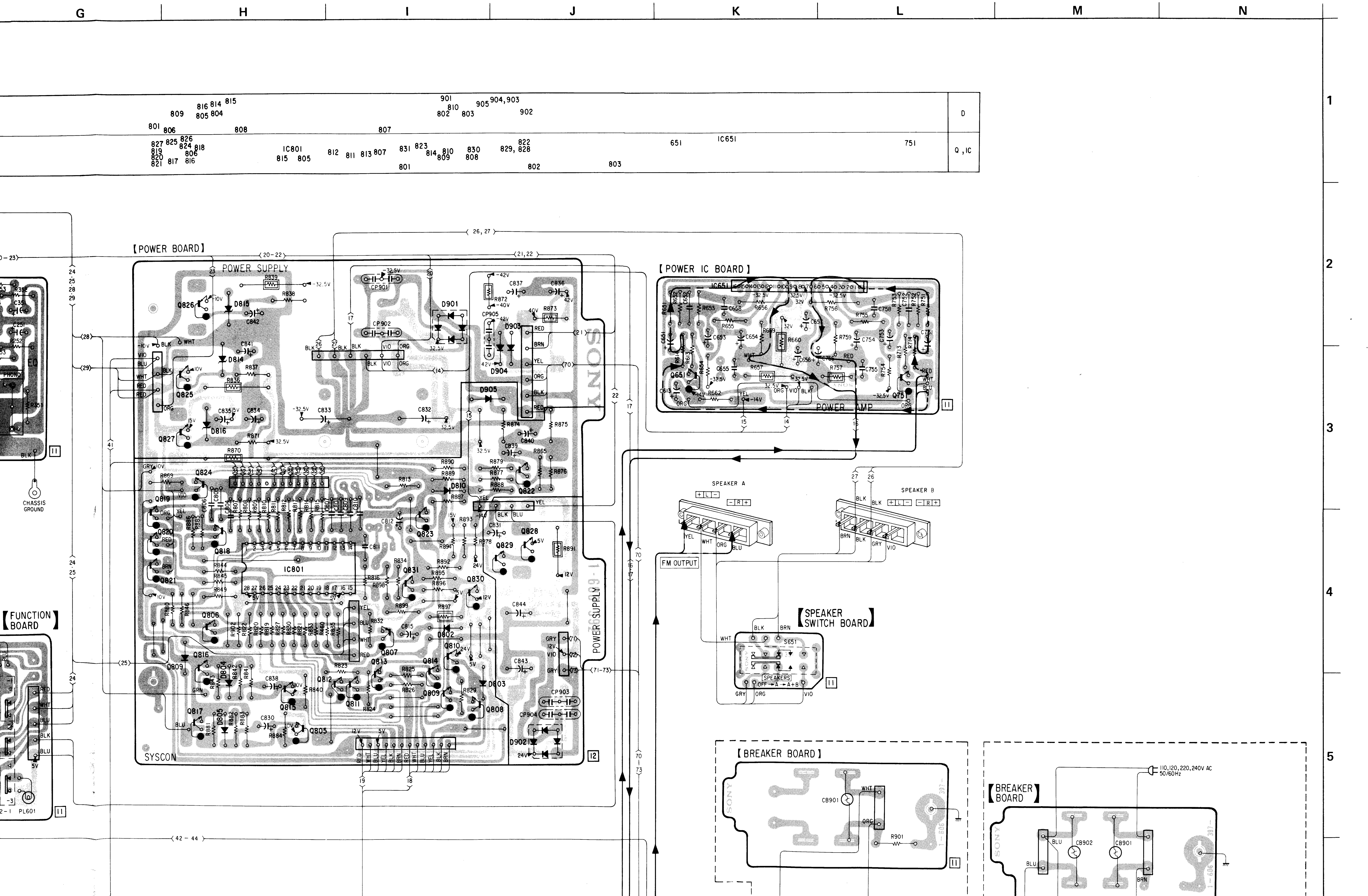
– Conductor Side –

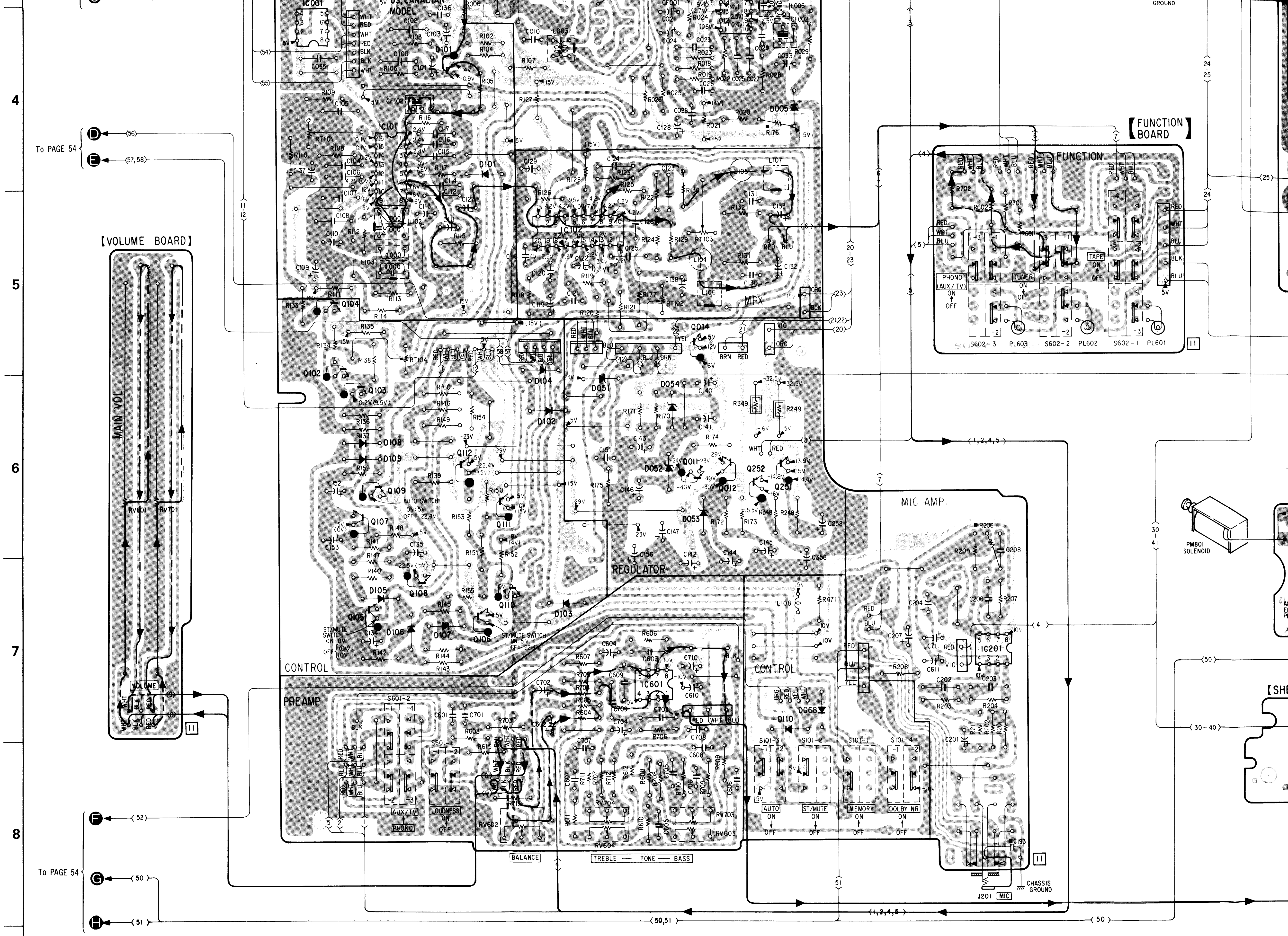
(Refer to page 67 for semiconductor lead layouts.
Refer to page 50 for IC block diagram.)

	A	B	C	D	E	F	G
D		108 109 105 106	107 101 001 104 102 103	051 006 054 052 053	005 110 068		
Q, IC		IC001 104 102, 103 105 107 109	IC101 108 101 112 106 111 110 IC102	IC601 014 011 012 IC002 252	251	IC251 IC201	


A
B
C
D
E
F
G
1
2
3
4
5
To PAGE 54
(24,25,28,29)
24, 25, 28, 29
L001
AM FERRITE-ROD ANTENNA
BLK
WHT
GRN
YEL
FM INPUT
45
46
47
48
AM
75Ω
300Ω
FM
ANTENNA
FM
【TUNER BOARD】
FM FRONT-END
SONY
B+2
B+1
NC
FOUT
IF
GND
ANT
US, CANADIAN MODEL
AM
C018
L008
C155
IC002
IC001
CF101
CT002
L003
Q101
IC101
D101
IC102
L107
L105
L104
L106
RT101
RT102
RT103
MPX
D005
R176
Q104
Q102
Q103
Q014
D104
D051
D054
D102
D108
R349
R249
To PAGE 54
(11-13)
(13)
(53-55)
(53)
(54)
(55)
(56)
(57, 58)
(20-23)
(21, 22)
(20)
(23)
(3)
(6)
(5)
(4)
(1)
(2)
(25)
(28)
(29)
ORG
BLK
V10
BRN
RED
【VOLUME BOARD】
MAIN VOL
【PIN JACK BOARD】
C355
R355
R354
R360
R353
R352
C351
C354
C353
IC251
C356
C357
C257
C256
C251
R356
C254
C253
R260
R252
R256
R255
R254
R253
C255
R357
R257
R351
R251
EQ
REC OUT
AUX/TV
PHONO
L
R
BLK
CHASSIS GROUND
11
【FUNCTION BOARD】
FUNCTION
R702
R602
R701
R601
PHONO (AUX/TV)
ON
OFF
TUNER
TAPE
S602-3
PL603
S602-2
PL602
S602-1
PL601
5V
-32.5V
32.5V
15V
-14.9V
14.9V
13.9V

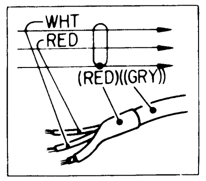
G	H	I	J	K	L	
801	809 816 814 815 805 804 806 808	807 901 810 802 803 905	904,903 902			D
827 819 820 821	825 826 824 818 806 817 816 IC801 815 805	812 811 813 807 831 823 801 814 810 809 830 808	822 829, 828 802 803	651 IC651	751	Q ,IC


G
H
I
J
K
L
M
N
1
2
3
4
5
【POWER BOARD】
POWER SUPPLY
SYSCON
POWER SUPPLY 1-609-932
SONY
IC801
12
【POWER IC BOARD】
IC651
POWER AMP
11
SPEAKER A
SPEAKER B
FM OUTPUT
【SPEAKER SWITCH BOARD】
S651
SPEAKERS
OFF→A→A+B
【BREAKER BOARD】
CB901
CB902
R901
110,120,220,240V AC 50/60Hz
【FUNCTION BOARD】
PL601
CHASSIS GROUND
(26, 27)
(20 - 22)
(21,22)
(42 - 44)
(71-73)
(25)
(28)
(29)

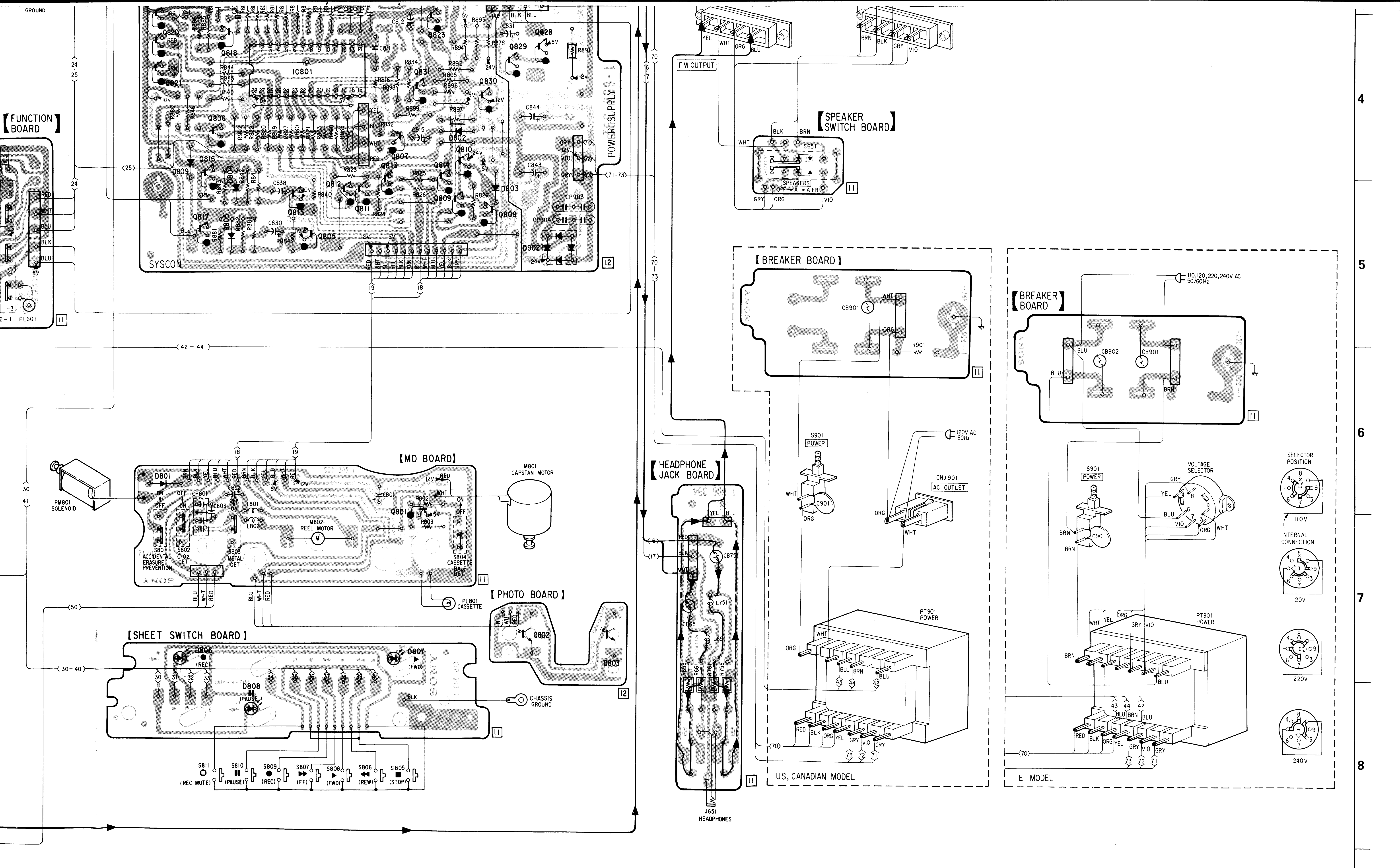

4
5
6
7
8
To PAGE 54
D
E
F
G
H
【VOLUME BOARD】
MAIN VOL
RV601
RV701
VOLUME
IC001
US,CANADIAN MODEL
IC101
IC102
MPX
REGULATOR
CONTROL
PREAMP
S601-2
S601-1
AUX/TV
PHONO
LOUDNESS
ON
OFF
BALANCE
RV602
RV704
RV703
RV604
RV603
TREBLE — TONE — BASS
IC601
CONTROL
S101-3
S101-2
S101-1
S101-4
AUTO
ST/MUTE
MEMORY
DOLBY NR
MIC AMP
IC201
J201
MIC
CHASSIS GROUND
【FUNCTION BOARD】
FUNCTION
PHONO (AUX/TV)
TUNER
TAPE
S602-3
PL603
S602-2
PL602
S602-1
PL601
PM801 SOLENOID
AUTO SWITCH ON 5V OFF -22.4V
ST/MUTE SWITCH ON 0V OFF 10V
GROUND

Note:

- ○—: parts extracted from the component side.
- ●—: parts extracted from the conductor side.
- ■ : part mounted on the conductor side.
- [ ]← : indicates side identified with part number.
- Color code of sleeving over the end of the jacket.


WHT
RED
(RED)(GRY)

- ▨ : B+ pattern
- ▨ : B- pattern
- ━ ━▶━ : signal path
- ━━ ━▶ : L-CH signal path
- ━━·━▶ : R-CH signal path


GROUND
FUNCTION BOARD
PL601
SYSCON
IC801
POWER SUPPLY
FM OUTPUT
SPEAKER SWITCH BOARD
S651
SPEAKERS
OFF → A → A+B
BREAKER BOARD
CB901
R901
CB902
110,120,220,240V AC 50/60Hz
S901 POWER
C901
120V AC 60Hz
CNJ 901 AC OUTLET
VOLTAGE SELECTOR
SELECTOR POSITION
110V
INTERNAL CONNECTION
120V
220V
240V
PT901 POWER
US, CANADIAN MODEL
E MODEL
MD BOARD
D801
CP801
C802
C803
L801
L802
M802 REEL MOTOR
C801
Q801
R802
R803
12V
5V
M801 CAPSTAN MOTOR
PM801 SOLENOID
S801 ACCIDENTAL ERASURE PREVENTION
S802 CrO2 DET
S803 METAL DET
S804 CASSETTE HALF DET
PL801 CASSETTE
PHOTO BOARD
Q802
Q803
SHEET SWITCH BOARD
D806 (REC)
D807 (FWD)
D808 (PAUSE)
CHASSIS GROUND
S811 (REC MUTE)
S810 (PAUSE)
S809 (REC)
S807 (FF)
S808 (FWD)
S806 (REW)
S805 (STOP)
HEADPHONE JACK BOARD
C651
C751
L651
L751
R658
R661
R761
R758
J651 HEADPHONES
RED
WHT
BLU
BLK
YEL
BRN
ORG
GRY
VIO
GRN
11
12
4
5
6
7
8

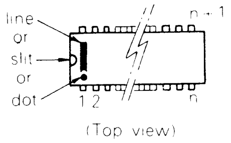
4-5. TUNER, POWER AMP, POWER SUPPLY SECTION MOUNTING DIAGRAM (AEP, UK model)

– Conductor Side –

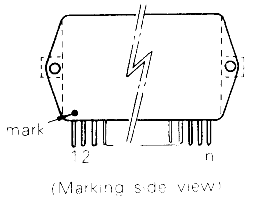
(Refer to page 83 for IC block diagram.)

Semiconductor Lead Layouts

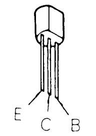
LA1235
LA1245
LA3390
MSM5836RS
NJM4560D-D
TC4066BP
µPB553AC
µPC4558C


line
or
slit
or
dot
n+1
1 2
n
(Top view)

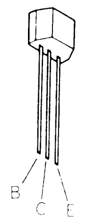
STK463


mark
1 2
n
(Marking side view)

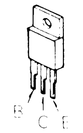
2SA844
2SA1015
2SC1364
2SC1815
2SC2878-A



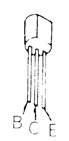
2SB808
2SD1012



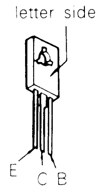
2SB834
2SD880



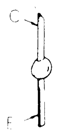
2SC710-14



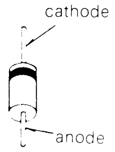
2SD862


letter side
E C B

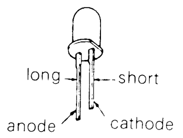
PH102



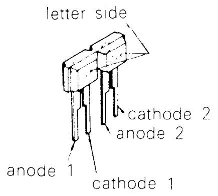
1S1555
1S1585
1S2076A
10E2
EQA01-05R
EQA01-06S
EQA01-11R
EQA01-16R
EQA01-24R
EQA01-30R
EQB01-06
EQB01-11Z
EQB01-16
EQB01-24
EQB01-30


cathode
anode

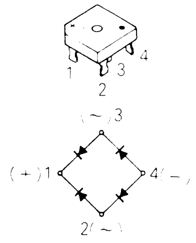
AA3432S
AR3432S
PG3432S
PG3432SX


long
short
anode
cathode

KV1226

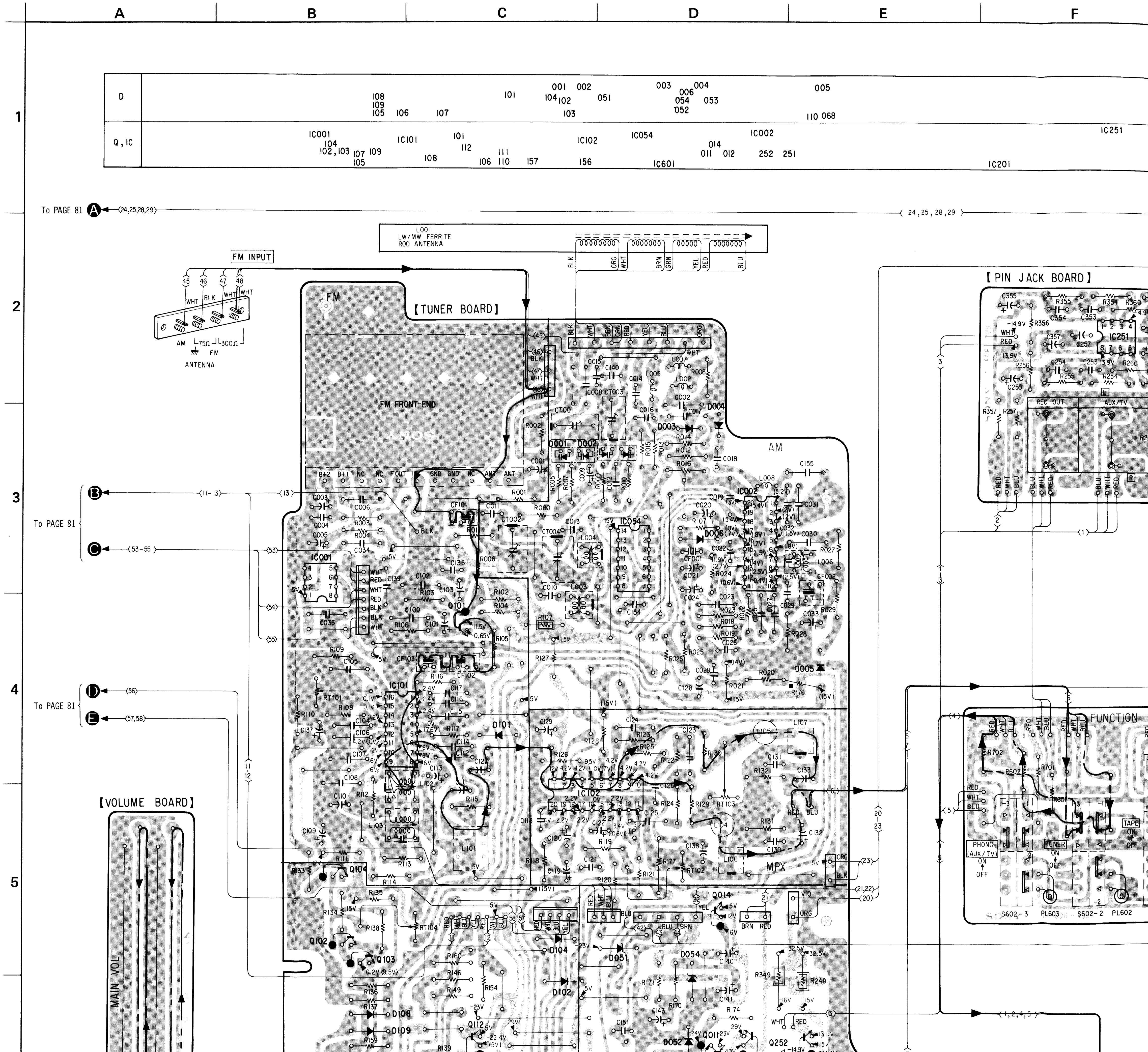

letter side
cathode 2
anode 2
anode 1
cathode 1

S2VB10
S2VB20
S4VB20
S4VB40

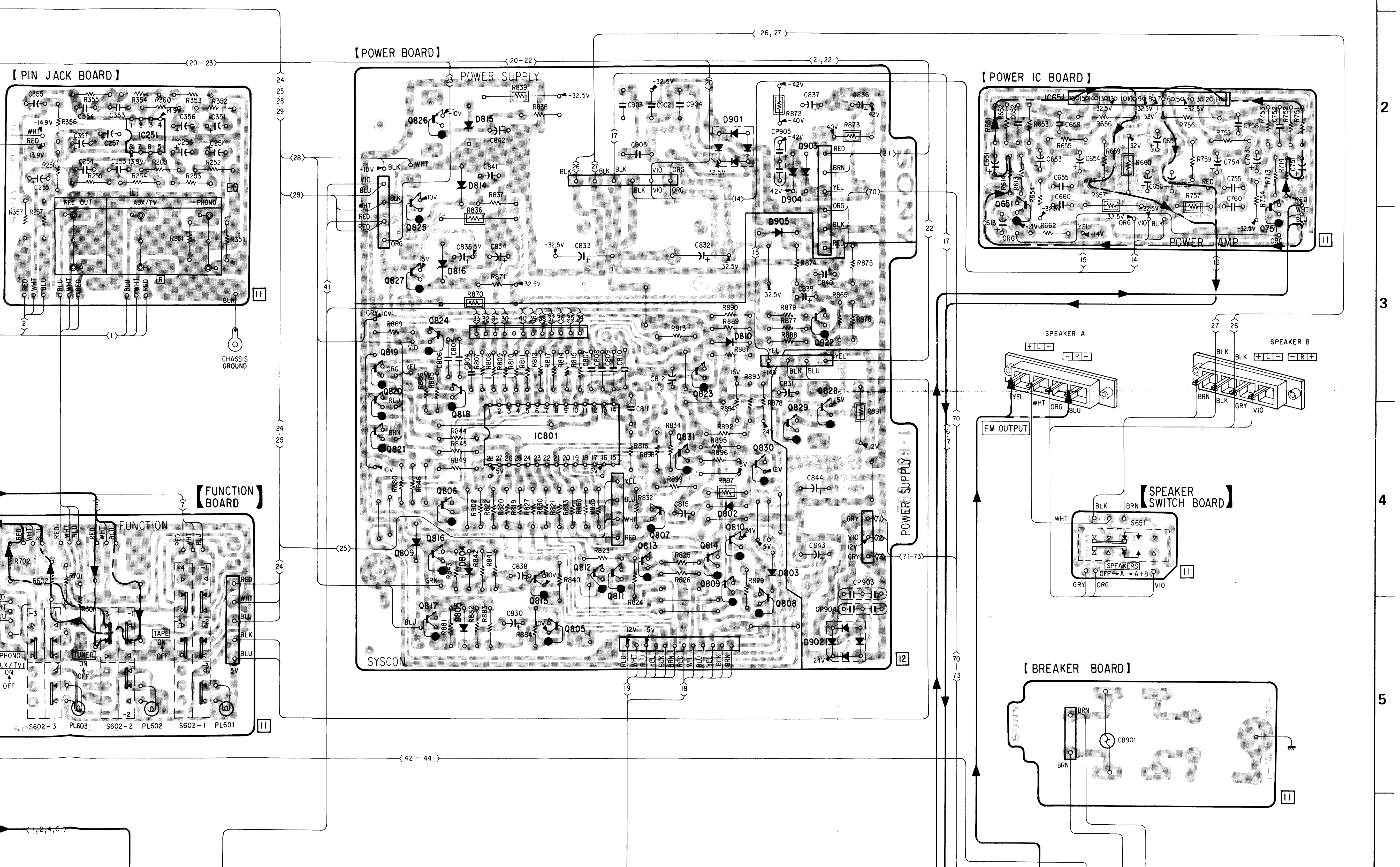


Note:

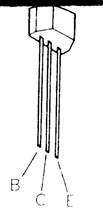
- Components for right channel have same values as for left channel.
- All capacitors are in µF unless otherwise noted. pF : µµF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in ohms, ¼W unless otherwise noted. kΩ : 1000Ω, MΩ : 1000kΩ
- ▭ : nonflammable resistor.
- ▭ : adjustment for repair.
- —— : B+ bus.
- – – – : B- bus.
- Voltages are dc with respect to ground unless otherwise noted.


A
B
C
D
E
F
1
2
3
4
5
D
Q, IC
To PAGE 81 A
To PAGE 81 B C
To PAGE 81 D E
FM INPUT
AM
75Ω
300Ω
FM
ANTENNA
L001 LW/MW FERRITE ROD ANTENNA
FM
【TUNER BOARD】
FM FRONT-END
SONY
AM
MPX
【VOLUME BOARD】
MAIN VOL
【PIN JACK BOARD】
REC OUT
AUX/TV
FUNCTION
PHONO
TUNER
TAPE
S602-3
PL603
S602-2
PL602

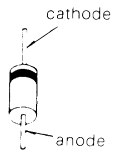
	F	G	H	I	J	K	L	
		801	809 816 814 815 805 804 806 808	807 901 810 802 803 905	904,903 902			D
IC201	IC251	827 825 826 824 818 819 820 821 817 816	806 IC801 815 805 812	811 813 807 831 823 814 810 809 801 830 808	822 829, 828 802 803	651 IC651	751	Q , IC



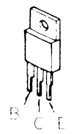
【PIN JACK BOARD】
EQ
REC OUT
AUX/TV
PHONO
CHASSIS GROUND
【FUNCTION BOARD】
FUNCTION
TAPE ON OFF
TUNER ON OFF
PHONO AUX/TV ON OFF
S602-3
PL603
S602-2
PL602
S602-1
PL601
【POWER BOARD】
POWER SUPPLY
SYSCON
POWER SUPPLY 1-619-
IC801
SONY
【POWER IC BOARD】
IC651
POWER AMP
SPEAKER A
SPEAKER B
FM OUTPUT
【SPEAKER SWITCH BOARD】
S651
SPEAKERS OFF→A→A+B
【BREAKER BOARD】
CB901
SONY
1
2
3
4
5



EQB01-06
EQB01-11Z
EQB01-16
EQB01-24
EQB01-30


cathode
anode

2SB834
2SD880



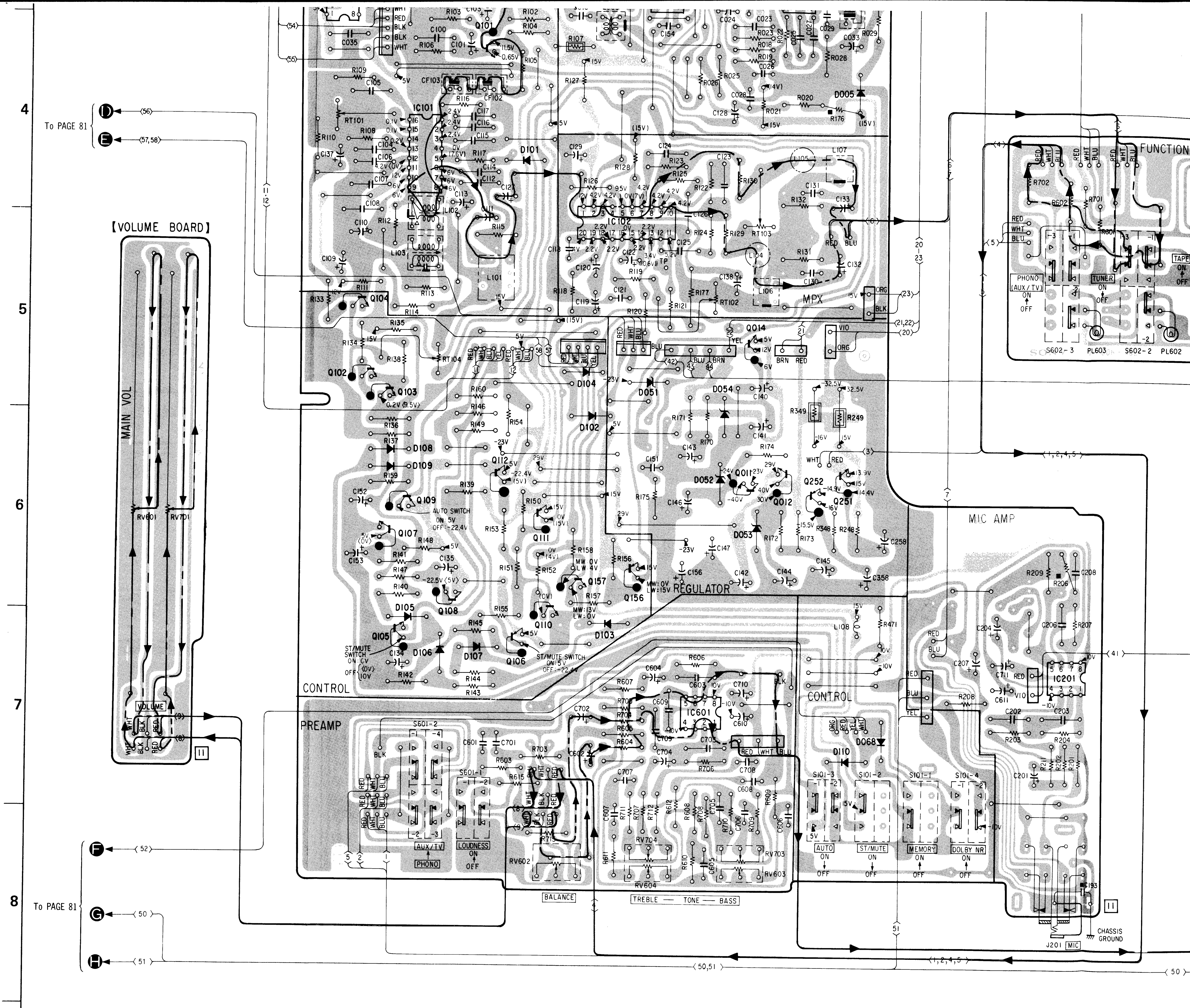
Note:

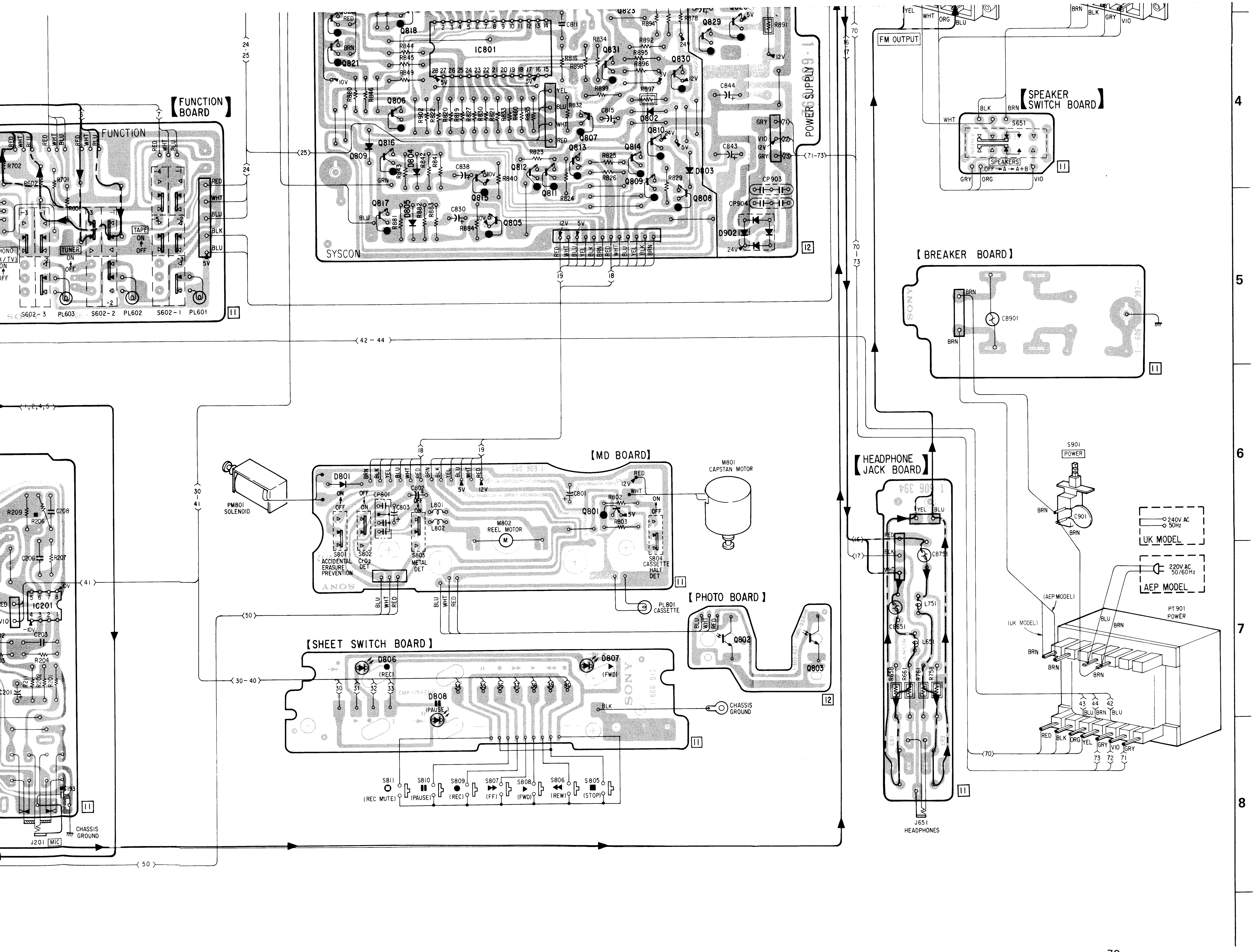
- Components for right channel have same values as for left channel.
- All capacitors are in μF unless otherwise noted. pF : μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in ohms, ¼ W unless otherwise noted. kΩ : 1000 Ω, MΩ : 1000 kΩ
- ▭ : nonflammable resistor.
- ▭ : adjustment for repair.
- ——— : B+ bus.
- - - - : B- bus.
- Voltages are dc with respect to ground unless otherwise noted.
- Readings are taken under detuned conditions.
  no mark : FM
  ( ) : AM
  < > : received FM signal
  (( )) : received FM stereo signal
- Voltage variations may be noted due to normal production tolerances.
- Switch

Ref. No.	Switch	Position
S101-1	MEMORY	OFF
S101-2	ST/MUTE	ON
S101-3	AUTO	ON
S101-4	DOLBY NR	OFF
S601-1	LOUDNESS	OFF
S601-2	PHONO, AUX/TV selector	PHONO
S602-1	TAPE	OFF
S602-2	TUNER	ON
S602-3	PHONO (AUX/TV)	OFF
S651	SPEAKER	OFF
S801	accidental erasure prevention	OFF
S802	CrO2 detection	OFF
S803	metal detection	OFF
S804	cassette half detection	OFF
S805	■ stop	OFF
S806	◀◀ rewind	OFF
S807	▶▶ fast forward	OFF
S808	▶ forward	OFF
S809	● record	OFF
S810	▮▮ pause	OFF
S811	○ record muting	OFF
S901	POWER	OFF

- ➡ : signal path

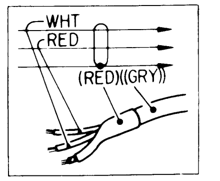
Note: Voltages are measured with a VOM (50kΩ/V).


4
5
6
7
8
To PAGE 81
D
E
F
G
H
【VOLUME BOARD】
MAIN VOL
RV601
RV701
VOLUME
IC101
IC102
MPX
CONTROL
REGULATOR
PREAMP
MIC AMP
FUNCTION
IC601
IC201
S601-2
S601-1
AUX/TV
PHONO
LOUDNESS
ON
OFF
BALANCE
TREBLE — TONE — BASS
RV602
RV604
RV704
RV603
RV703
S101-3
S101-2
S101-1
S101-4
AUTO
ST/MUTE
MEMORY
DOLBY NR
S602-3
S602-2
PL603
PL602
PHONO (AUX/TV)
TUNER
TAPE
J201
MIC
CHASSIS GROUND
AUTO SWITCH ON 5V OFF -22.4V
ST/MUTE SWITCH ON 0V OFF 10V
ST/MUTE SWITCH ON 5V OFF -22.4V


FUNCTION BOARD
FUNCTION
TAPE
ON
OFF
TUNER
PHONO
S602-3
PL603
S602-2
PL602
S602-1
PL601
SYSCON
IC801
POWER SUPPLY
FM OUTPUT
SPEAKER SWITCH BOARD
S651
SPEAKERS
OFF→A→A+B
BREAKER BOARD
CB901
MD BOARD
PM801 SOLENOID
M801 CAPSTAN MOTOR
M802 REEL MOTOR
S801 ACCIDENTAL ERASURE PREVENTION
S802 CrO2 DET
S803 METAL DET
S804 CASSETTE HALF DET
PL801 CASSETTE
PHOTO BOARD
Q802
Q803
SHEET SWITCH BOARD
D806 (REC)
D807 (FWD)
D808 (PAUSE)
CHASSIS GROUND
S811 (REC MUTE)
S810 (PAUSE)
S809 (REC)
S807 (FF)
S808 (FWD)
S806 (REW)
S805 (STOP)
HEADPHONE JACK BOARD
J651 HEADPHONES
S901 POWER
C901
240V AC 50Hz
UK MODEL
220V AC 50/60Hz
AEP MODEL
(AEP MODEL)
(UK MODEL)
PT901 POWER
IC201
J201 MIC
CHASSIS GROUND
4
5
6
7
8

Note:

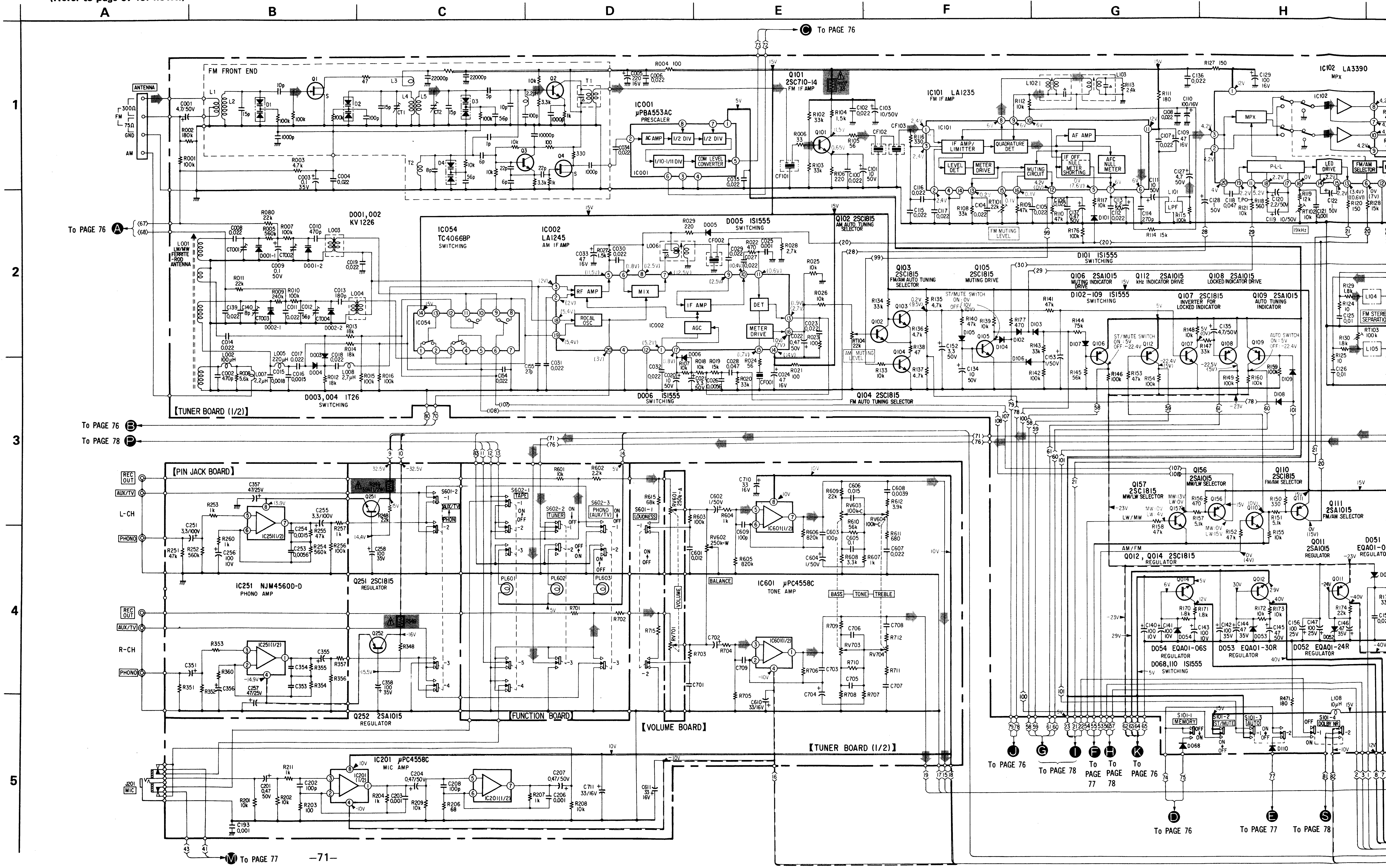
- ○—: parts extracted from the component side.
- ●—: parts extracted from the conductor side.
- ■ : part mounted on the con ductor side.
- [ ]⊢ : indicates side identified with part number.
- Color code of sleeving over the end of the jacket.

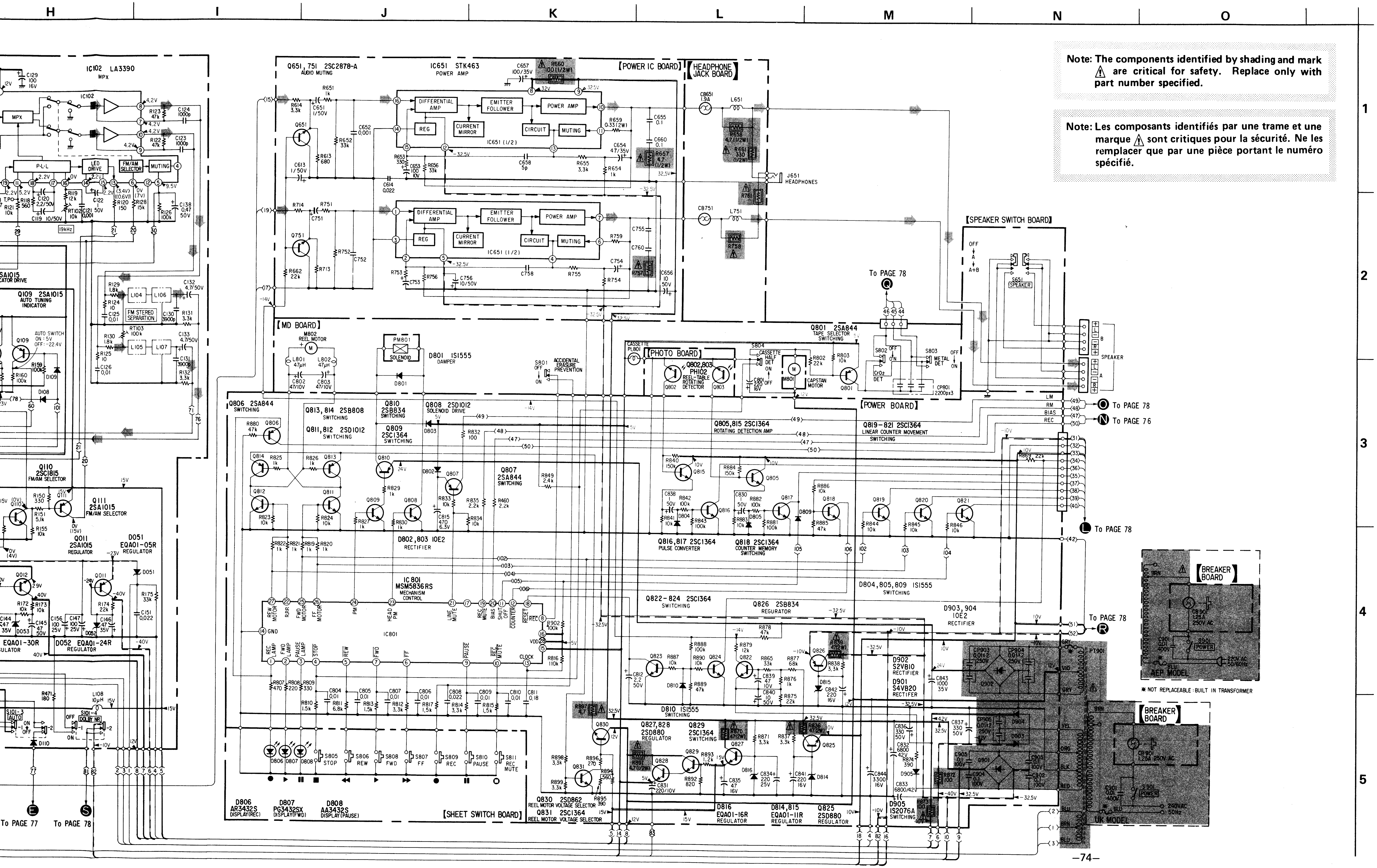

WHT
RED
(RED)((GRY))

- ▨ : B+ pattern
- ░ : B- pattern
- ━━▶━ : signal path
- ━━ ━━▶ : L-CH signal path
- ━━ ▪▪━━▶ : R-CH signal path

4-6. TUNER, POWER AMP, POWER SUPPLY SECTION SCHEMATIC DIAGRAM (AEP, UK model)

(Refer to page 67 for notes.)


A
B
C
D
E
F
G
H
1
2
3
4
5
To PAGE 76
FM FRONT END
ANTENNA
FM 300Ω
75Ω
GND
AM
IC001 μPBA553AC PRESCALER
AC AMP
1/2 DIV
1/10-1/11 DIV
COM LEVEL CONVERTER
Q101 2SC710-14 FM IF AMP
IC101 LA1235 FM IF AMP
IF AMP/LIMITTER
QUADRATURE DET
AF AMP
LEVEL DET
METER DRIVE
MUTING CIRCUIT
IF OFF NULL METER SHORTING
AFC NULL METER
IC102 LA3390 MPX
MPX
P-L-L
LED DRIVE
FM/AM SELECTOR
To PAGE 76
D001,002 KV1226
L001 LW/MW FERRITE-ROD ANTENNA
IC054 TC4066BP SWITCHING
IC002 LA1245 AM IF AMP
RF AMP
MIX
ROCAL OSC
IF AMP
AGC
DET
METER DRIVE
D005 1S1555 SWITCHING
Q102 2SC1815 AM AUTO TUNING SELECTOR
Q103 2SC1815 FM/AM AUTO TUNING SELECTOR
Q105 2SC1815 MUTING DRIVE
D101 1S1555 SWITCHING
Q106 2SA1015 MUTING INDICATOR DRIVE
Q112 2SA1015 kHz INDICATOR DRIVE
Q108 2SA1015 LOCKED INDICATOR DRIVE
D102-109 1S1555 SWITCHING
Q107 2SC1815 INVERTER FOR LOCKED INDICATOR
Q109 2SA1015 AUTO TUNING INDICATOR
ST/MUTE SWITCH
AUTO SWITCH
D003,004 1T26 SWITCHING
D006 1S1555 SWITCHING
Q104 2SC1815 FM AUTO TUNING SELECTOR
【TUNER BOARD (1/2)】
To PAGE 76
To PAGE 78
【PIN JACK BOARD】
REC OUT
AUX/TV
L-CH
PHONO
IC251 NJM4560D-D PHONO AMP
Q251 2SC1815 REGULATOR
R-CH
Q252 2SA1015 REGULATOR
S601-2
S602-1 TAPE
S602-2 TUNER
S602-3 PHONO (AUX/TV)
PL601
PL602
PL603
【FUNCTION BOARD】
S601-1 LOUDNESS
RV601 VOLUME
IC601 μPC4558C TONE AMP
BALANCE
BASS
TONE
TREBLE
【VOLUME BOARD】
【TUNER BOARD (1/2)】
Q157 2SC1815 MW/LW SELECTOR
Q156 2SA1015 MW/LW SELECTOR
Q110 2SC1815 FM/AM SELECTOR
Q111 2SA1015 FM/AM SELECTOR
Q011 2SA1015 REGULATOR
D051 EQA01-0 REGULATOR
Q012, Q014 2SC1815 REGULATOR
D054 EQA01-06S REGULATOR
D053 EQA01-30R REGULATOR
D052 EQA01-24R REGULATOR
D068,110 1S1555 SWITCHING
S101-1 MEMORY
S101-2 ST/MUTE
S101-3 AUTO
S101-4 DOLBY NR
J201 MIC
IC201 μPC4558C MIC AMP
To PAGE 76
To PAGE 78
To PAGE 77
To PAGE 78
To PAGE 76
To PAGE 76
To PAGE 77
To PAGE 78
To PAGE 77


H
I
J
K
L
M
N
O
1
2
3
4
5
IC102 LA3390 MPX
MPX
P-L-L
LED DRIVE
FM/AM SELECTOR
MUTING
Q109 2SA1015 AUTO TUNING INDICATOR
AUTO SWITCH ON: 5V OFF: -22.4V
FM STEREO SEPARATION
Q110 2SC1815 FM/AM SELECTOR
Q111 2SA1015 FM/AM SELECTOR
Q011 2SA1015 REGULATOR
D051 EQA01-05R REGULATOR
EQA01-30R
D052 EQA01-24R REGULATOR
S101-3 AUTO
S101-4 DOLBY NR
To PAGE 77
To PAGE 78
Q651, 751 2SC2878-A AUDIO MUTING
IC651 STK463 POWER AMP
【POWER IC BOARD】
【HEADPHONE JACK BOARD】
DIFFERENTIAL AMP
EMITTER FOLLOWER
POWER AMP
REG
CURRENT MIRROR
CIRCUIT
MUTING
IC651 (1/2)
J651 HEADPHONES
【SPEAKER SWITCH BOARD】
S651 SPEAKER
SPEAKER
To PAGE 78
【MD BOARD】
M802 REEL MOTOR
PM801 SOLENOID
D801 1S1555 DAMPER
S801 ACCIDENTAL ERASURE PREVENTION
【PHOTO BOARD】
Q802,803 PH102 REEL-TABLE ROTATING DETECTOR
S804 CASSETTE HALF DET
CAPSTAN MOTOR
Q801 2SA844 TAPE SELECTOR SWITCHING
S802 CrO2 DET
S803 METAL DET
【POWER BOARD】
To PAGE 78
To PAGE 76
Q806 2SA844 SWITCHING
Q813, 814 2SB808 SWITCHING
Q811, 812 2SD1012 SWITCHING
Q810 2SB834 SWITCHING
Q808 2SD1012 SOLENOID DRIVE
Q809 2SC1364 SWITCHING
Q807 2SA844 SWITCHING
Q805,815 2SC1364 ROTATING DETECTION AMP
Q819-821 2SC1364 LINEAR COUNTER MOVEMENT SWITCHING
Q816,817 2SC1364 PULSE CONVERTER
Q818 2SC1364 COUNTER MEMORY SWITCHING
D802,803 10E2 RECTIFIER
IC801 MSM5836RS MECHANISM CONTROL
D804,805,809 1S1555 SWITCHING
To PAGE 78
Q822-824 2SC1364 SWITCHING
Q826 2SB834 REGURATOR
D903,904 10E2 RECTIFIER
To PAGE 78
D902 S2VB10 RECTIFIER
D901 S4VB20 RECTIFIER
D810 1S1555 SWITCHING
Q827,828 2SD880 REGULATOR
Q829 2SC1364 SWITCHING
Q830 2SD862 REEL MOTOR VOLTAGE SELECTOR
Q831 2SC1364 REEL MOTOR VOLTAGE SELECTOR
D816 EQA01-16R REGULATOR
D814,815 EQA01-11R REGULATOR
Q825 2SD880 REGULATOR
D905 1S2076A SWITCHING
S805 STOP
S806 REW
S808 FWD
S807 FF
S809 REC
S810 PAUSE
S811 REC MUTE
D806 AR3432S DISPLAY(REC)
D807 PG3432SX DISPLAY(FWD)
D808 AA3432S DISPLAY(PAUSE)
【SHEET SWITCH BOARD】
【BREAKER BOARD】
S901 POWER
220V AC 50/60Hz
AEP MODEL
【BREAKER BOARD】
240V AC 50Hz
UK MODEL
PT901

Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

Note: Les composants identifiés par une trame et une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

✻ NOT REPLACEABLE: BUILT IN TRANSFORMER

4-7. CASSETTE AMP, CONTROL, DISPLAY SECTION SCHEMATIC DIAGRAM (AEP, UK model)

Note:

- Components for right channel have same values as for left channel.
- All capacitors are in µF unless otherwise noted. pF : µµF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in ohms, ¼ W unless otherwise noted. kΩ : 1000 Ω, MΩ : 1000 kΩ
- ▭ : adjustment for repair.
- ——: B+ bus.
- – – –: B- bus.
- Voltages are dc with respect to ground unless otherwise noted.
- Readings are taken under FM detuned conditions.
- Voltage variations may be noted due to normal production tolerances.

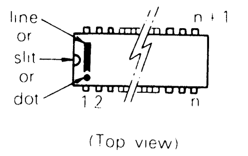
Note: Voltages are measured with a VOM (50kΩ/V).

- Switch

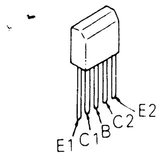
Ref. No.	Switch	Position
S001	TUNING +	OFF
S002	TUNING –	OFF
S003	1	OFF
S004	2	OFF
S005	3	OFF
S006	4	OFF
S007	5	OFF
S008	6	OFF
S009	LW	OFF
S010	MW	OFF
S011	FM	OFF
S012	COUNTER RESET	OFF
S013	MEMORY	OFF
S102	LW FREQ	LW1
S402	ISS	1

Semiconductor Lead Layouts

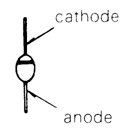
CX174
CX174A
NJM4562D-D
TC4027BP
TC4069UBP
µPC4558C
µPD550C047
µPD1703C522
µPD4011BC


line
or
slit
or
dot
n + 1
1 2
n
(Top view)

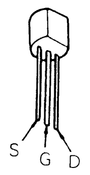
2SC2291



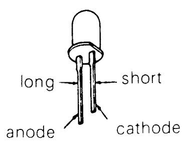
MV12N


cathode
anode

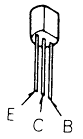
2SK30A-GR2



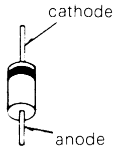
AA5535S
PG5535SY
PR5535S


long
short
anode
cathode

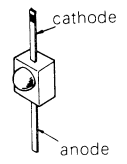
2SA844
2SA1015
2SC900
2SC1362
2SC1364
2SC1815

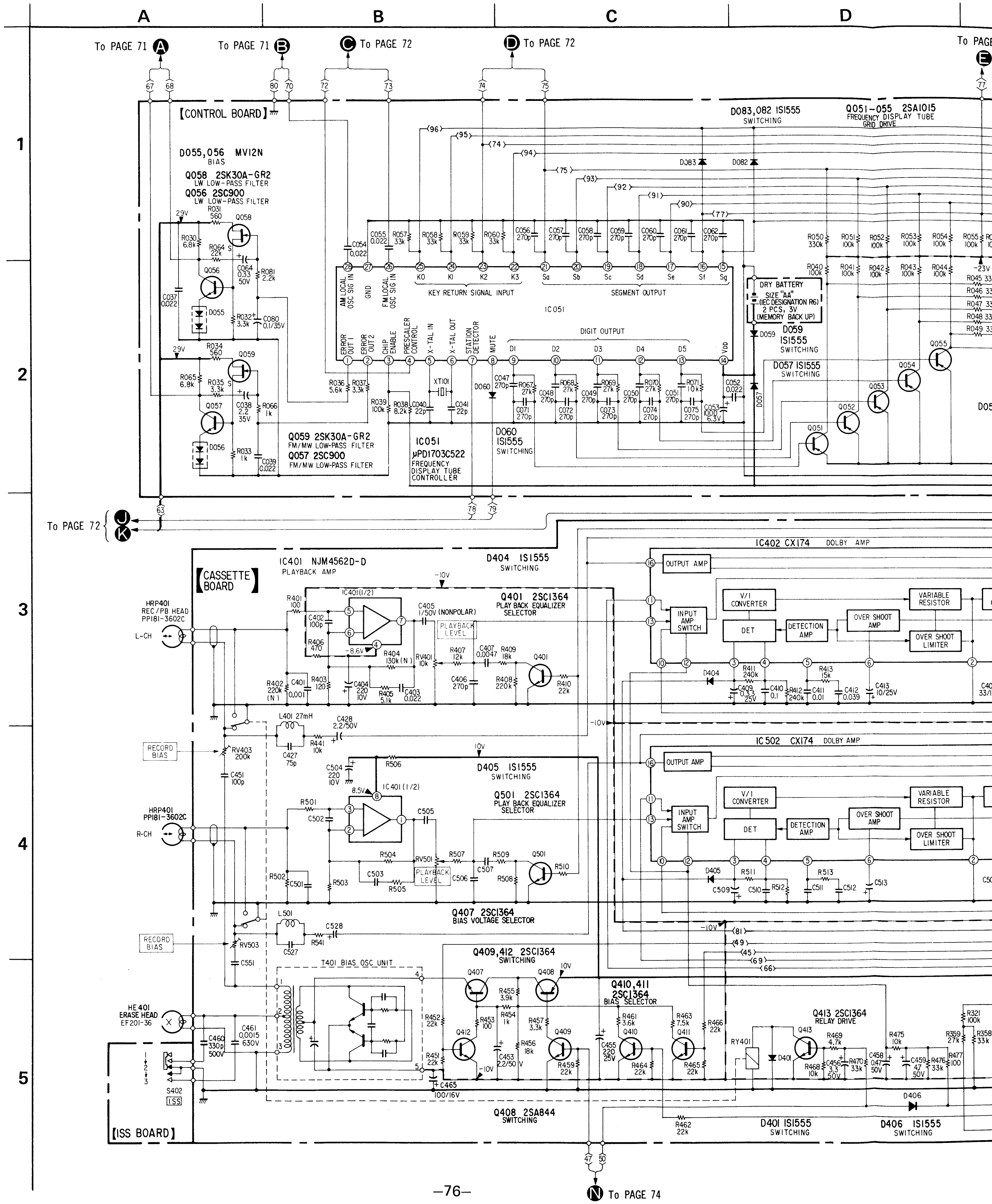


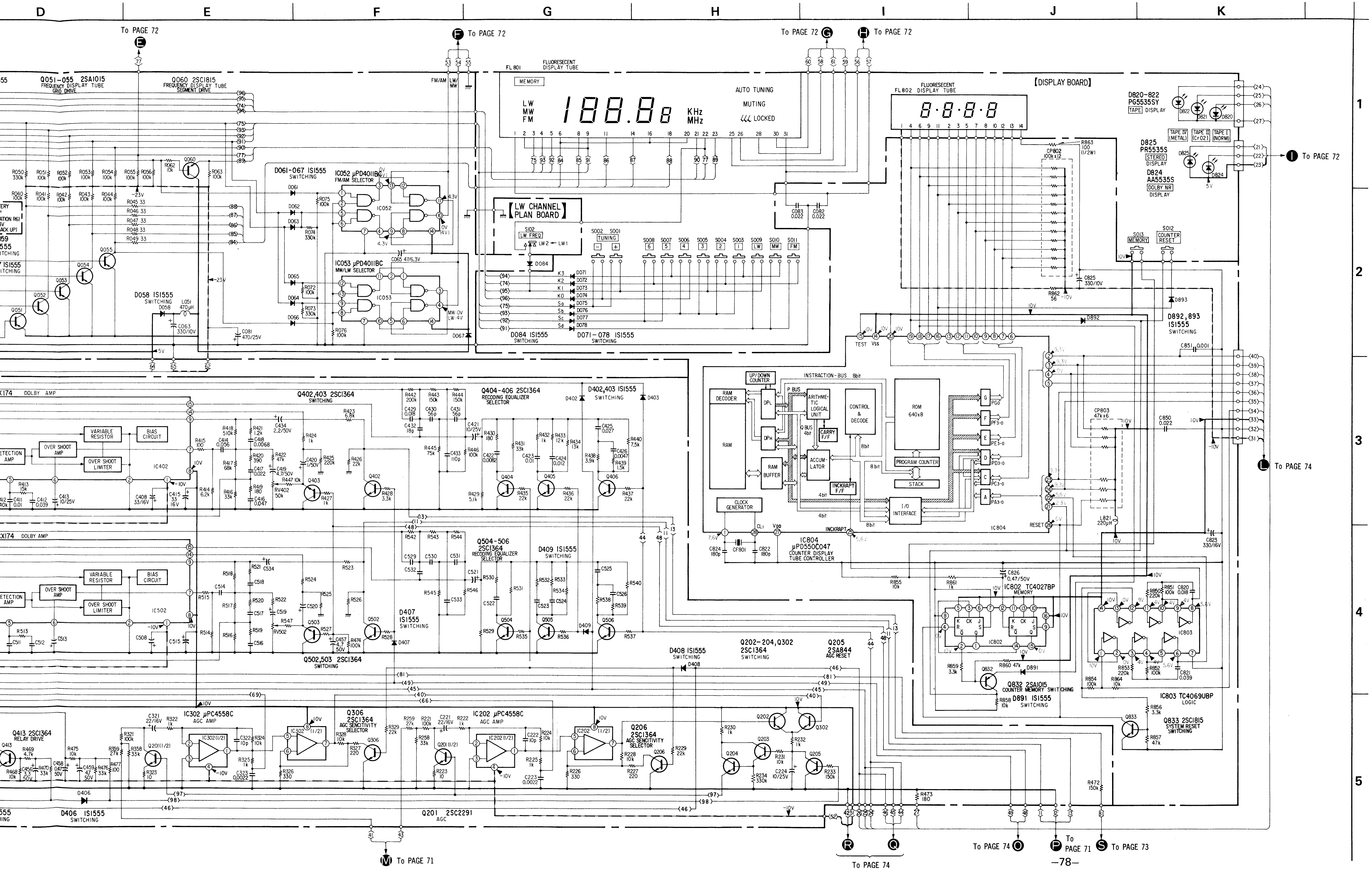
1S1555


cathode
anode

1T26


cathode
anode

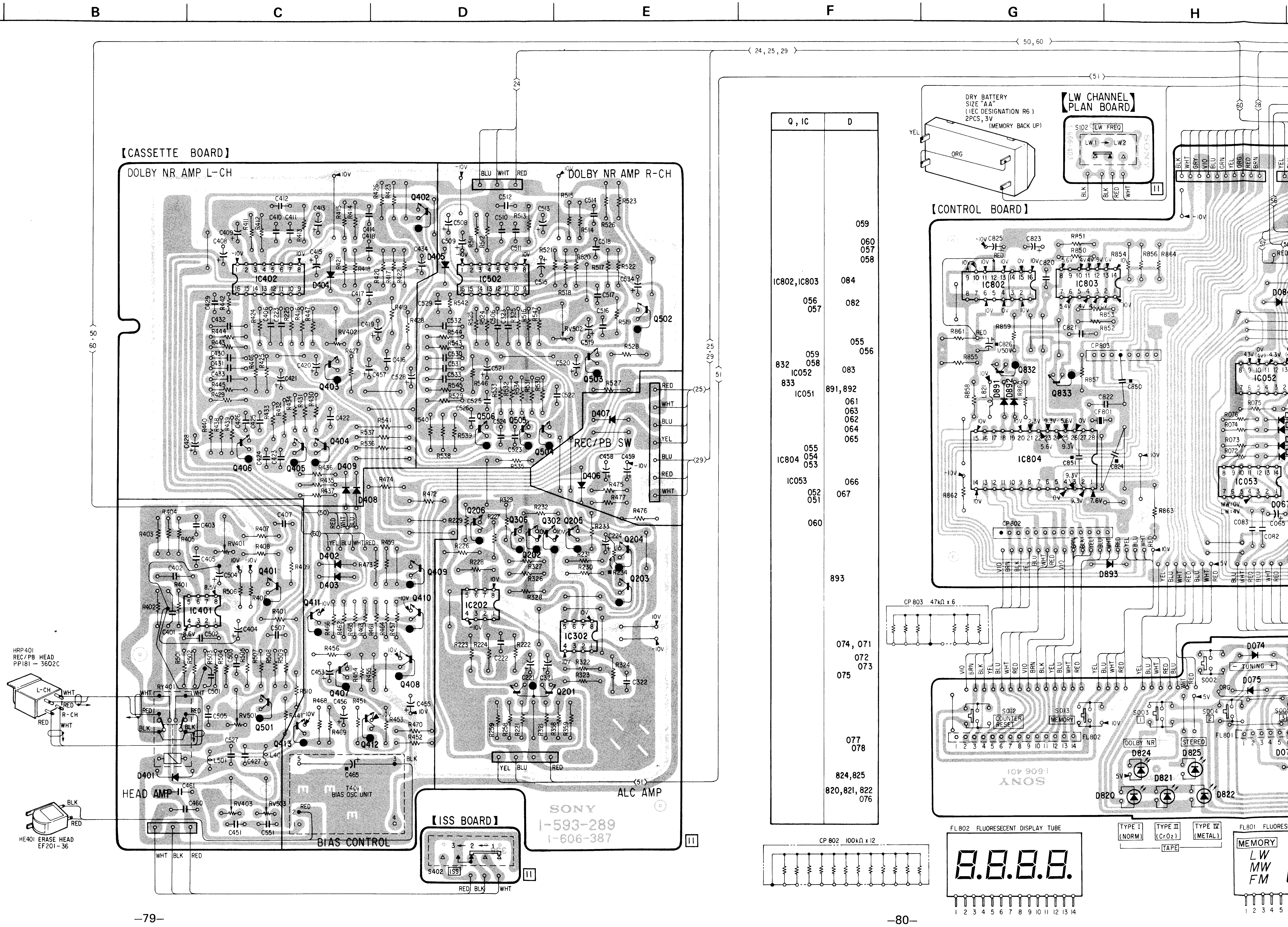

A
B
C
D
1
2
3
4
5
To PAGE 71 A
To PAGE 71 B
C To PAGE 72
D To PAGE 72
To PAGE E
[CONTROL BOARD]
D055,056 MV12N BIAS
Q058 2SK30A-GR2 LW LOW-PASS FILTER
Q056 2SC900 LW LOW-PASS FILTER
Q059 2SK30A-GR2 FM/MW LOW-PASS FILTER
Q057 2SC900 FM/MW LOW-PASS FILTER
IC051 µPD1703C522 FREQUENCY DISPLAY TUBE CONTROLLER
D060 1S1555 SWITCHING
D083,082 1S1555 SWITCHING
Q051–055 2SA1015 FREQUENCY DISPLAY TUBE GRID DRIVE
DRY BATTERY SIZE "AA" (IEC DESIGNATION R6) 2 PCS. 3V (MEMORY BACK UP)
D059 1S1555 SWITCHING
D057 1S1555 SWITCHING
KEY RETURN SIGNAL INPUT
SEGMENT OUTPUT
DIGIT OUTPUT
To PAGE 72 J K
[CASSETTE BOARD]
IC401 NJM4562D-D PLAYBACK AMP
HRP401 REC/PB HEAD PP181-3602C
L-CH
R-CH
D404 1S1555 SWITCHING
Q401 2SC1364 PLAY BACK EQUALIZER SELECTOR
PLAYBACK LEVEL
IC402 CX174 DOLBY AMP
OUTPUT AMP
INPUT AMP SWITCH
V/I CONVERTER
DET
DETECTION AMP
OVER SHOOT AMP
VARIABLE RESISTOR
OVER SHOOT LIMITER
RECORD BIAS
D405 1S1555 SWITCHING
Q501 2SC1364 PLAY BACK EQUALIZER SELECTOR
IC502 CX174 DOLBY AMP
Q407 2SC1364 BIAS VOLTAGE SELECTOR
Q409,412 2SC1364 SWITCHING
Q410,411 2SC1364 BIAS SELECTOR
T401 BIAS OSC UNIT
HE401 ERASE HEAD EF201-36
S402 ISS
[ISS BOARD]
Q413 2SC1364 RELAY DRIVE
RY401
Q408 2SA844 SWITCHING
D401 1S1555 SWITCHING
D406 1S1555 SWITCHING
N To PAGE 74


D
E
F
G
H
I
J
K
1
2
3
4
5
To PAGE 72
To PAGE 71
To PAGE 73
To PAGE 74
Q051–055 2SA1015 FREQUENCY DISPLAY TUBE GRID DRIVE
Q060 2SC1815 FREQUENCY DISPLAY TUBE SEGMENT DRIVE
FL 801 FLUORESCENT DISPLAY TUBE
MEMORY
LW
MW
FM
188.8
KHz
MHz
AUTO TUNING
MUTING
LOCKED
FL802 FLUORESCENT DISPLAY TUBE
8·8·8·8
【DISPLAY BOARD】
D820–822 PG5535SY
TAPE DISPLAY
TAPE IV (METAL)
TAPE II (CrO2)
TAPE I (NORM)
D825 PR5535S
STEREO DISPLAY
D824 AA5535S
DOLBY NR DISPLAY
D061–067 1S1555 SWITCHING
IC052 μPD4011BC FM/AM SELECTOR
IC053 μPD4011BC MW/LW SELECTOR
【LW CHANNEL PLAN BOARD】
S102 LW FREQ
LW2 ← LW1
S002 S001 TUNING
S008 S007 S006 S005 S004 S003 S009 S010 S011
LW MW FM
S013 MEMORY
S012 COUNTER RESET
D084 1S1555 SWITCHING
D071–078 1S1555 SWITCHING
D058 1S1555 SWITCHING
L051 470μH
D892, 893 1S1555 SWITCHING
IC804 μPD550C047 COUNTER DISPLAY TUBE CONTROLLER
RAM DECODER
RAM
UP/DOWN COUNTER
INSTRACTION-BUS 8bit
P BUS
ARITHMETIC LOGICAL UNIT
CONTROL & DECODE
ROM 640x8
CARRY F/F
ACCUMLATOR
RAM BUFFER
PROGRAM COUNTER
STACK
INCKRAPT F/F
CLOCK GENERATOR
I/O INTERFACE
TEST
Vss
RESET
CP802 100k x 12
CP803 47k x 6
IC802 TC4027BP MEMORY
IC803 TC4069UBP LOGIC
Q832 2SA1015 COUNTER MEMORY SWITCHING
D891 1S1555 SWITCHING
Q833 2SC1815 SYSTEM RESET SWITCHING
DOLBY AMP
VARIABLE RESISTOR
BIAS CIRCUIT
OVER SHOOT AMP
OVER SHOOT LIMITER
DETECTION AMP
IC402
IC502
Q402, 403 2SC1364 SWITCHING
Q404–406 2SC1364 RECODING EQUALIZER SELECTOR
D402, 403 1S1555 SWITCHING
Q504–506 2SC1364 RECODING EQUALIZER SELECTOR
D409 1S1555 SWITCHING
D407 1S1555 SWITCHING
Q502, 503 2SC1364 SWITCHING
D408 1S1555 SWITCHING
Q202–204, Q302 2SC1364 SWITCHING
Q205 2SA844 AGC RESET
Q413 2SC1364 RELAY DRIVE
IC302 μPC4558C AGC AMP
Q306 2SC1364 AGC SENCITIVITY SELECTOR
IC202 μPC4558C AGC AMP
Q206 2SC1364 AGC SENCITIVITY SELECTOR
Q201 2SC2291 AGC
D406 1S1555 SWITCHING

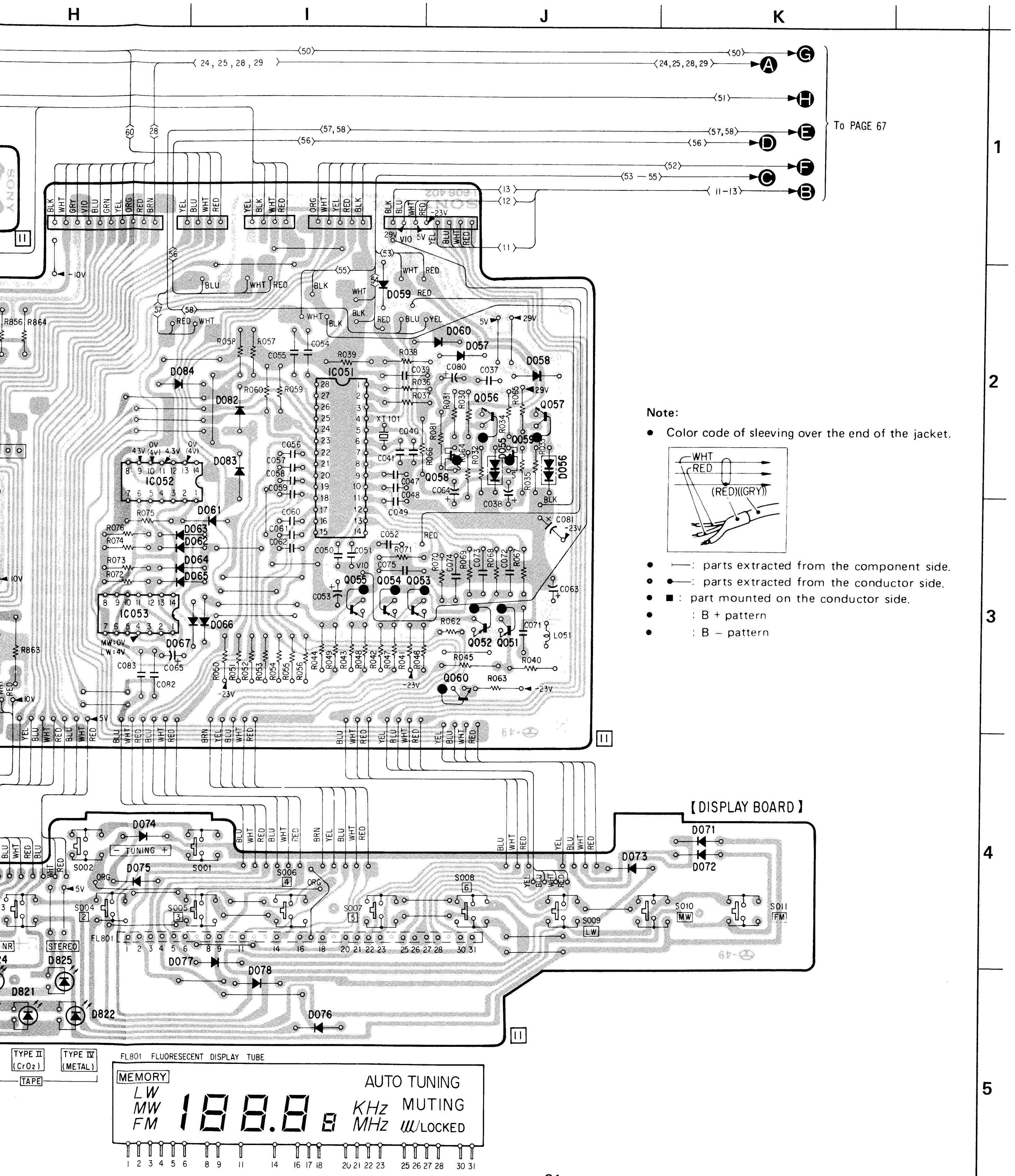
4-8. CASSETTE AMP, CONTROL, DISPLAY SECTION MOUNTING DIAGRAM (AEP, UK model)

— Conductor Side —

Q, IC	D	ADJ
402		
	404 405	
IC402,IC502		
502		502
		402
403 503		
	407	
506,505		
504		
404		
406,405		
	409,408	
	406	
206		
306,302		
205		
202,204		401
	402	
409	403	
401,203		
IC202		
IC401		
411,410		
IC302		
408		
407 201		
501		501
413,412		
	401	
		403
		503


A
B
C
D
E
F
G
H
1
2
3
4
5
【CASSETTE BOARD】
DOLBY NR AMP L-CH
DOLBY NR AMP R-CH
IC402
IC502
REC/PB SW
HEAD AMP
BIAS CONTROL
T401 BIAS OSC UNIT
ALC AMP
IC401
IC202
IC302
HRP401 REC/PB HEAD PP181 — 3602C
L-CH
R-CH
HE401 ERASE HEAD EF201-36
【ISS BOARD】
S402 ISS
SONY 1-593-289 1-606-387
DRY BATTERY SIZE "AA" (IEC DESIGNATION R6) 2PCS, 3V (MEMORY BACK UP)
【LW CHANNEL PLAN BOARD】
S102 LW FREQ
LW1 LW2
【CONTROL BOARD】
IC802
IC803
IC804
IC052
IC053
CP803
CP802
CP 803 47kΩ x 6
CP 802 100kΩ x 12
S012 COUNTER RESET
S013 MEMORY
DOLBY NR
STEREO
TUNING
FL802
FL801
FL802 FLUORESCENT DISPLAY TUBE
TYPE I (NORM)
TYPE II (CrO2)
TYPE IV (METAL)
TAPE
MEMORY
LW
MW
FM
SONY 1-606-401

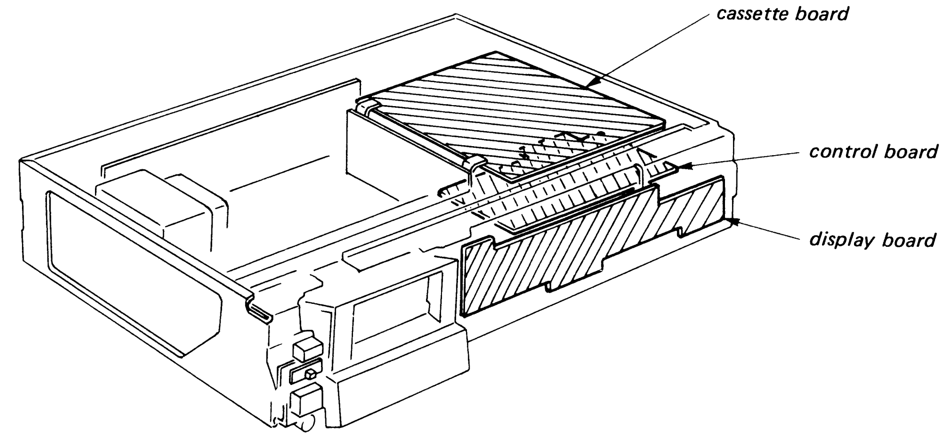
Q, IC	D
	059
	060
	057
	058
IC802,IC803	084
056	082
057	
	055
	056
059	
832 058	
IC052	083
833	
IC051	891,892
	061
	063
	062
	064
	065
055	
IC804 054	
053	
IC053	066
052	067
051	
060	
	893
	074, 071
	072
	073
	075
	077
	078
	824,825
	820,821, 822
	076


H
I
J
K
1
2
3
4
5
To PAGE 67
(50)
(24, 25, 28, 29)
(51)
(57, 58)
(56)
(52)
(53 — 55)
(11 — 13)
G
A
H
E
D
F
C
B
IC051
IC052
IC053
Q052
Q051
Q053
Q054
Q055
Q056
Q057
Q058
Q059
Q060
D057
D058
D059
D060
D061
D062
D063
D064
D065
D066
D067
D082
D083
D084
XT101
[DISPLAY BOARD]
D071
D072
D073
D074
D075
D076
D077
D078
D821
D822
D825
S001
S002
S004
S005
S006
S007
S008
S009
S010
S011
− TUNING +
MW
FM
LW
STEREO
FL801
TYPE II (CrO2)
TYPE IV (METAL)
TAPE
FL801 FLUORESECENT DISPLAY TUBE
MEMORY
LW
MW
FM
188.8
KHz
MHz
AUTO TUNING
MUTING
LOCKED
WHT
RED
(RED)(GRY)

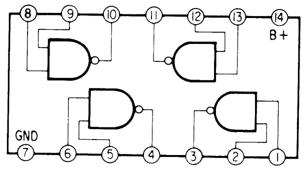
Note:

- Color code of sleeving over the end of the jacket.
- ——: parts extracted from the component side.
- •——: parts extracted from the conductor side.
- ■ : part mounted on the conductor side.
- : B + pattern
- : B − pattern

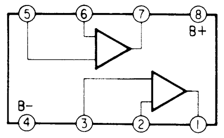
CIRCUIT BOARDS LOCATION


cassette board
control board
display board

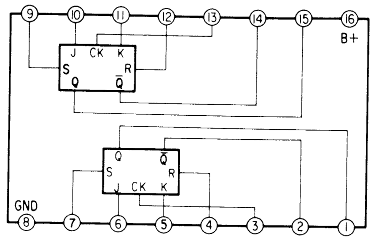
IC052,053



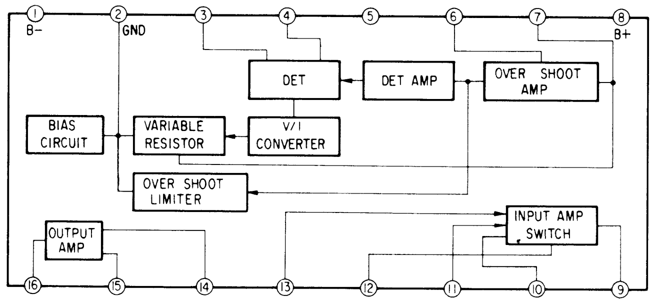
IC202,302,401



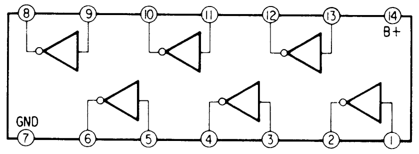
IC802


B+
J CK K
S R
Q Q
GND

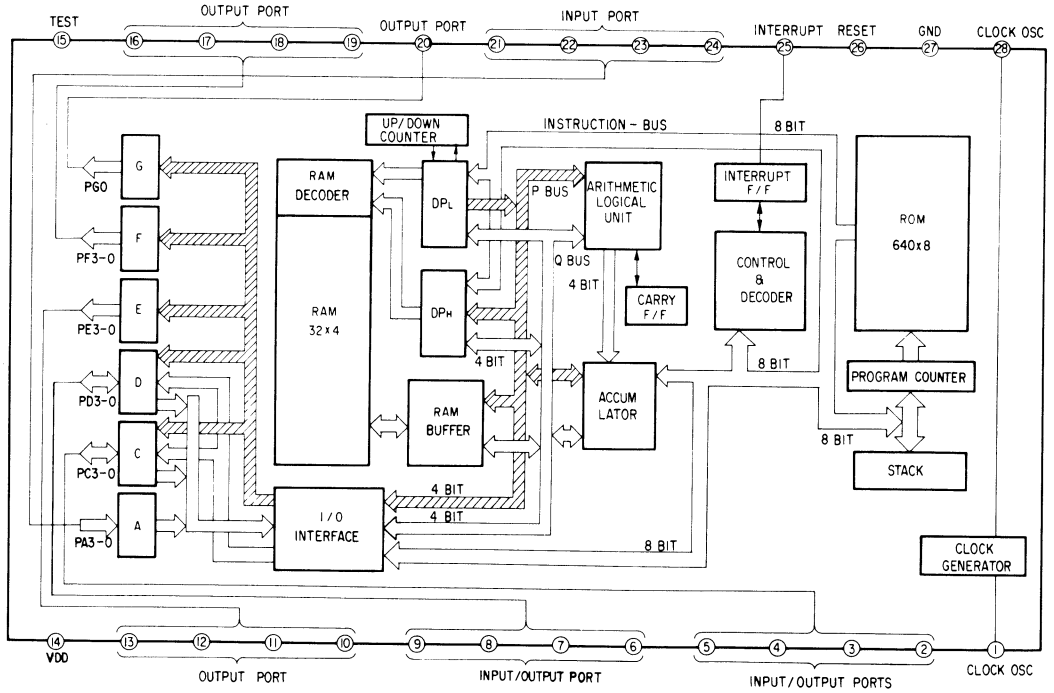
IC402,502


B−
GND
B+
DET
DET AMP
OVER SHOOT AMP
BIAS CIRCUIT
VARIABLE RESISTOR
V/I CONVERTER
OVER SHOOT LIMITER
INPUT AMP SWITCH
OUTPUT AMP

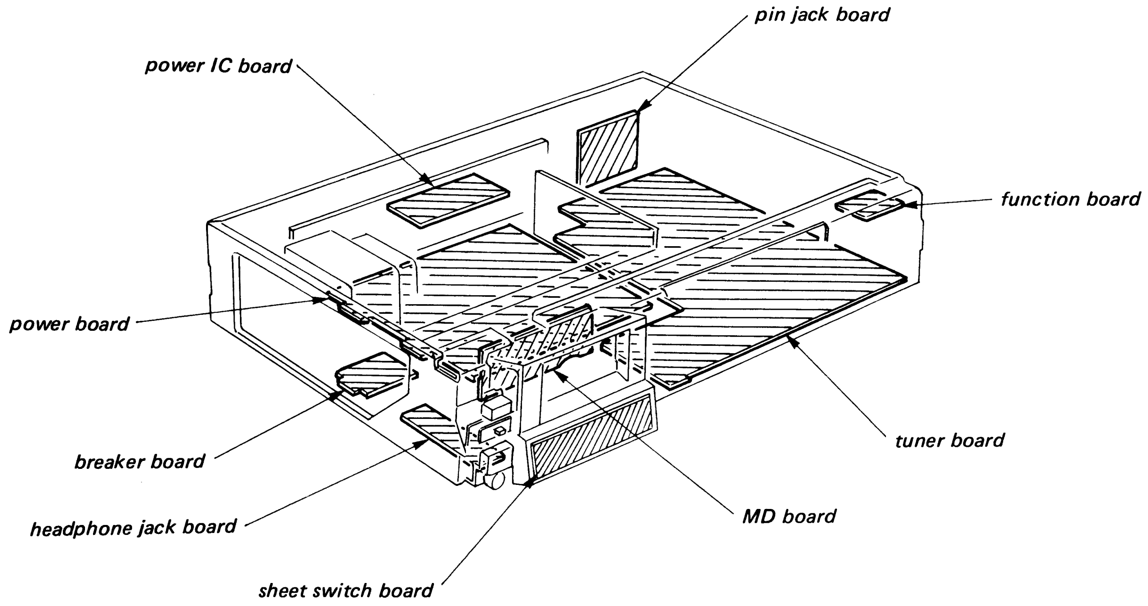
IC803



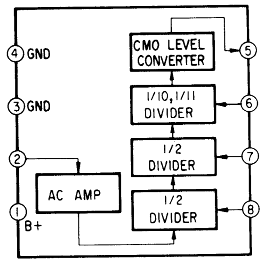
IC804


TEST
OUTPUT PORT
OUTPUT PORT
INPUT PORT
INTERRUPT
RESET
GND
CLOCK OSC
UP/DOWN COUNTER
INSTRUCTION - BUS
8 BIT
PG0
PF3-0
PE3-0
PD3-0
PC3-0
PA3-0
G
F
E
D
C
A
RAM DECODER
RAM 32×4
DPL
DPH
P BUS
Q BUS
4 BIT
ARITHMETIC LOGICAL UNIT
CARRY F/F
INTERRUPT F/F
CONTROL & DECODER
ROM 640×8
PROGRAM COUNTER
STACK
RAM BUFFER
ACCUM LATOR
I/O INTERFACE
CLOCK GENERATOR
VDD
OUTPUT PORT
INPUT/OUTPUT PORT
INPUT/OUTPUT PORTS
CLOCK OSC

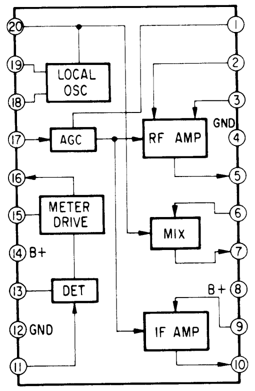
CIRCUIT BOARDS LOCATION


pin jack board
power IC board
function board
power board
breaker board
tuner board
headphone jack board
MD board
sheet switch board

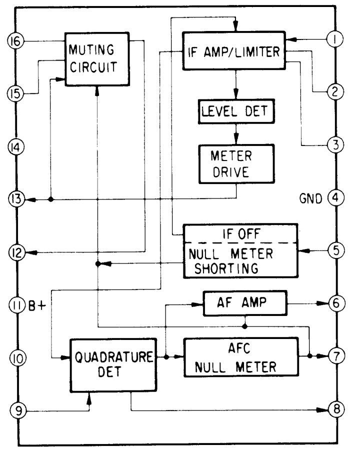
IC001


GND
GND
B+
CMO LEVEL CONVERTER
1/10, 1/11 DIVIDER
1/2 DIVIDER
AC AMP
1/2 DIVIDER

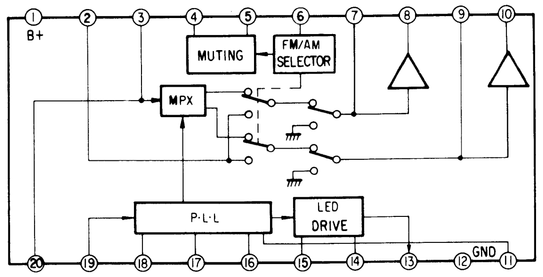
IC002


LOCAL OSC
AGC
RF AMP
GND
METER DRIVE
MIX
B+
DET
B+
GND
IF AMP

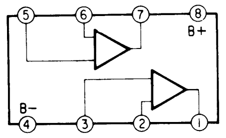
IC101


MUTING CIRCUIT
IF AMP/LIMITER
LEVEL DET
METER DRIVE
GND
IF OFF
NULL METER SHORTING
AF AMP
B+
QUADRATURE DET
AFC NULL METER

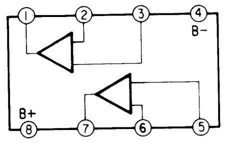
IC102


B+
MUTING
FM/AM SELECTOR
MPX
P·L·L
LED DRIVE
GND

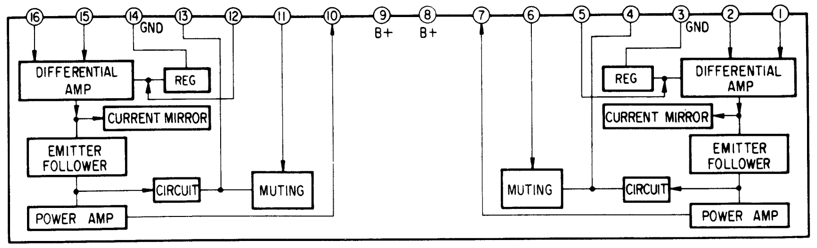
IC201,601



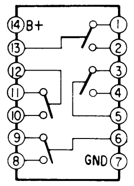
IC251



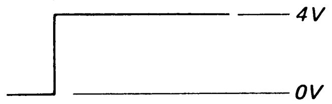
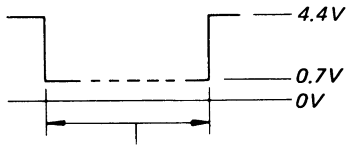
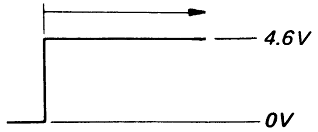
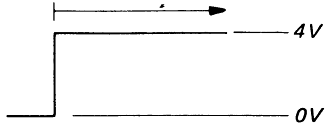
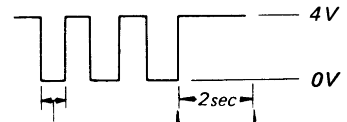
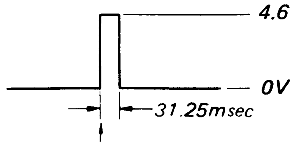
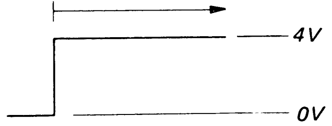
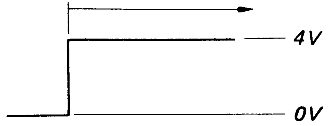
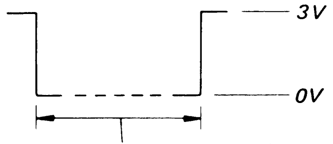
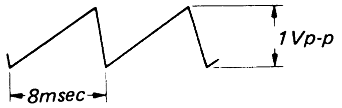
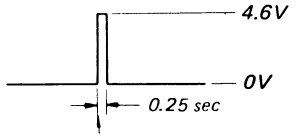
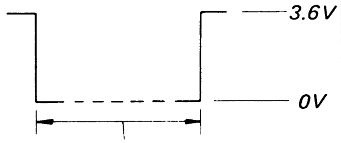
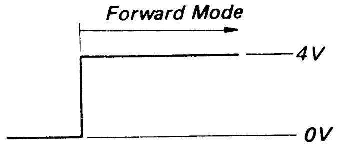
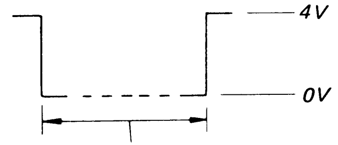
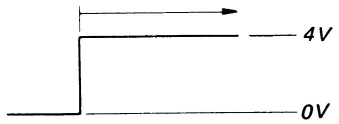
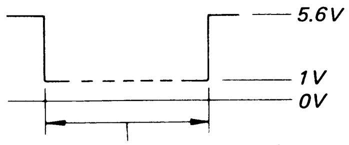
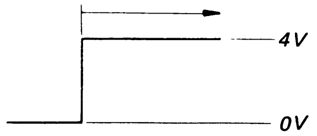
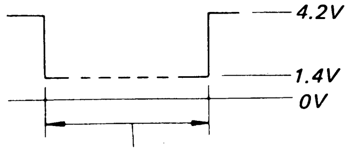
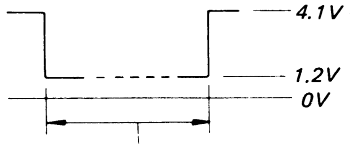
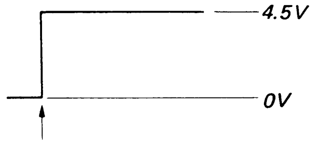
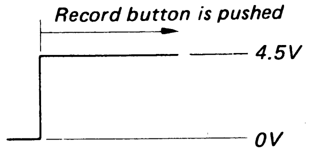
IC651


GND
B+
B+
GND
DIFFERENTIAL AMP
REG
CURRENT MIRROR
EMITTER FOLLOWER
CIRCUIT
MUTING
POWER AMP
REG
DIFFERENTIAL AMP
CURRENT MIRROR
EMITTER FOLLOWER
MUTING
CIRCUIT
POWER AMP

IC054



Voltages and Waveforms at the Terminals of IC801

Terminal No.	Waveform or Voltage	Terminal No.	Waveform or Voltage	Terminal No.	Waveform or Voltage
①	 Record Mode 4V 0V	⑩	 4.4V 0.7V 0V Record Muting button is pushed	㉑	Forward Mode or Record Mode (Voltage becomes 6V even when only REC button is pushed — REC MONITOR)  4.6V 0V
②	 Forward Mode 4V 0V	⑪	 4V 0V 2sec Tape End Auto Shut-off 0.2 sec Tape stops at the end of the tape in Forward Mode. (Voltage may fall to 0V by rotating angle of take-up reel spindle after shut-off mechanism operates.)	㉒	 4.6V 0V 31.25msec PAUSE button is pushed in Record Mode
③	 Pause Mode 4V 0V	⑫		㉓	 Forward Mode 4V 0V
④	 3V 0V Stop button is pushed	⑬	 1Vp-p 8msec	㉔	 4.6V 0V 0.25 sec Forward button is pushed
⑤	 3.6V 0V Rewind button is pushed	⑭	GND	㉕	 Forward Mode 4V 0V
⑥	 4V 0V Fast Forward button is pushed	⑮ ⑯	5Vdc	㉖	 Fast Forward Mode 4V 0V
⑦	 5.6V 1V 0V Forward button is pushed	⑰		㉗	 Rewind Mode 4V 0V
⑧	 4.2V 1.4V 0V Record button is pushed	⑱	3Vdc	㉘	5Vdc
⑨	 4.1V 1.2V 0V Pause button is pushed	⑲	 4.5V 0V Record Muting button is pushed in Record Mode		
		⑳	Record button is pushed  4.5V 0V		

5-1.

1

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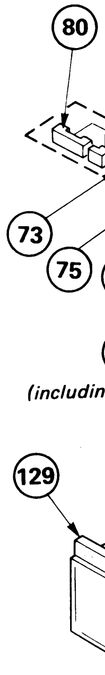
5



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Mode
en
is
OR

V

.6V

0V

ecord
Mode

4V

0V

6V

/

4V

0V

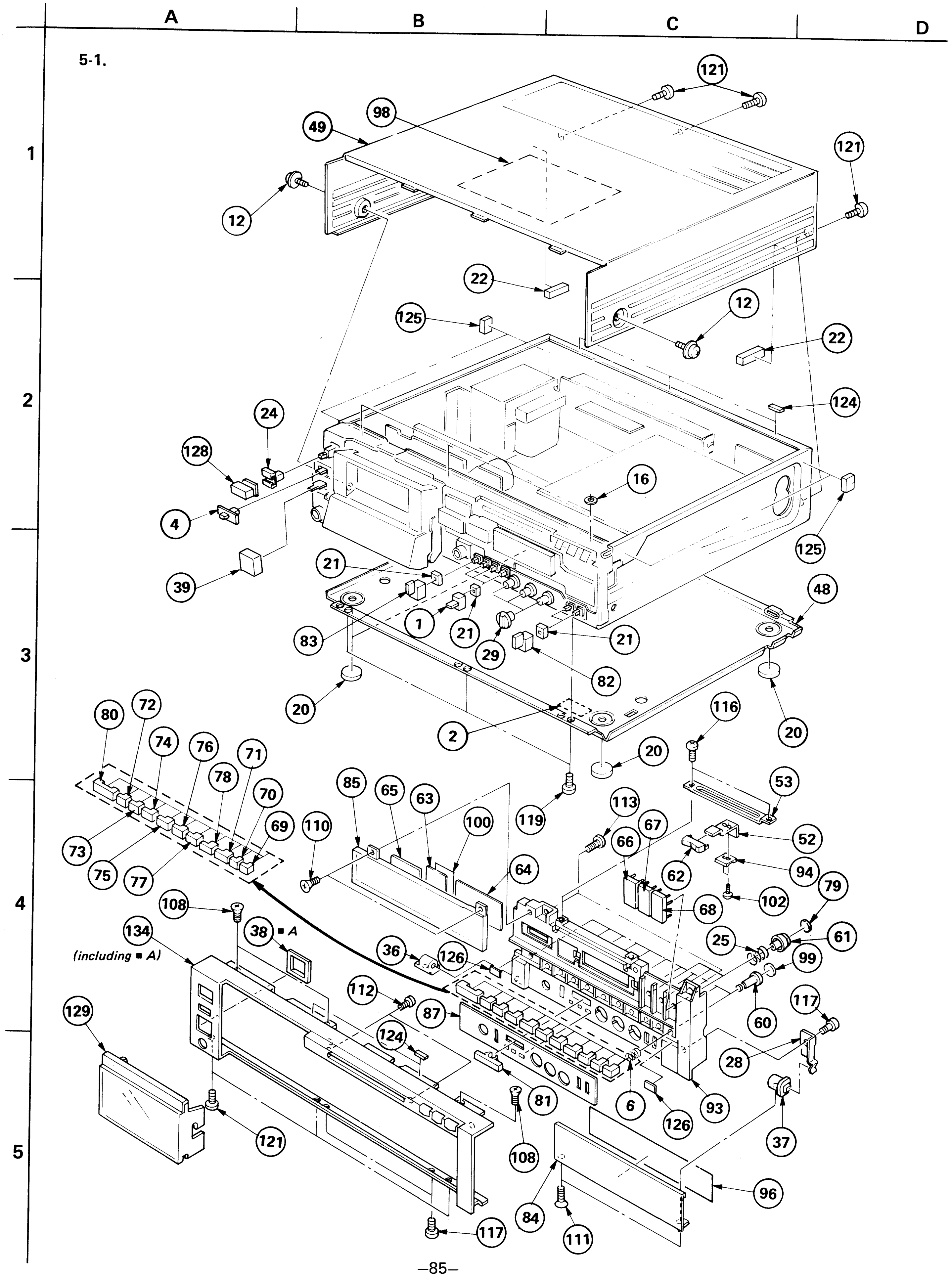
4V

0V

/

/

SECTION 5
EXPLODED VIEWS & PARTS LIST


A
B
C
D
1
2
3
4
5
5-1.
121
98
49
12
121
22
12
125
22
124
24
128
16
4
125
39
21
48
83
1
21
29
21
82
20
2
20
20
116
53
80
72
74
76
71
78
70
69
73
75
77
85
65
63
100
110
119
113
67
66
52
62
94
64
68
102
79
108
134
(including ■ A)
38 ■ A
36
126
25
61
99
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60
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129
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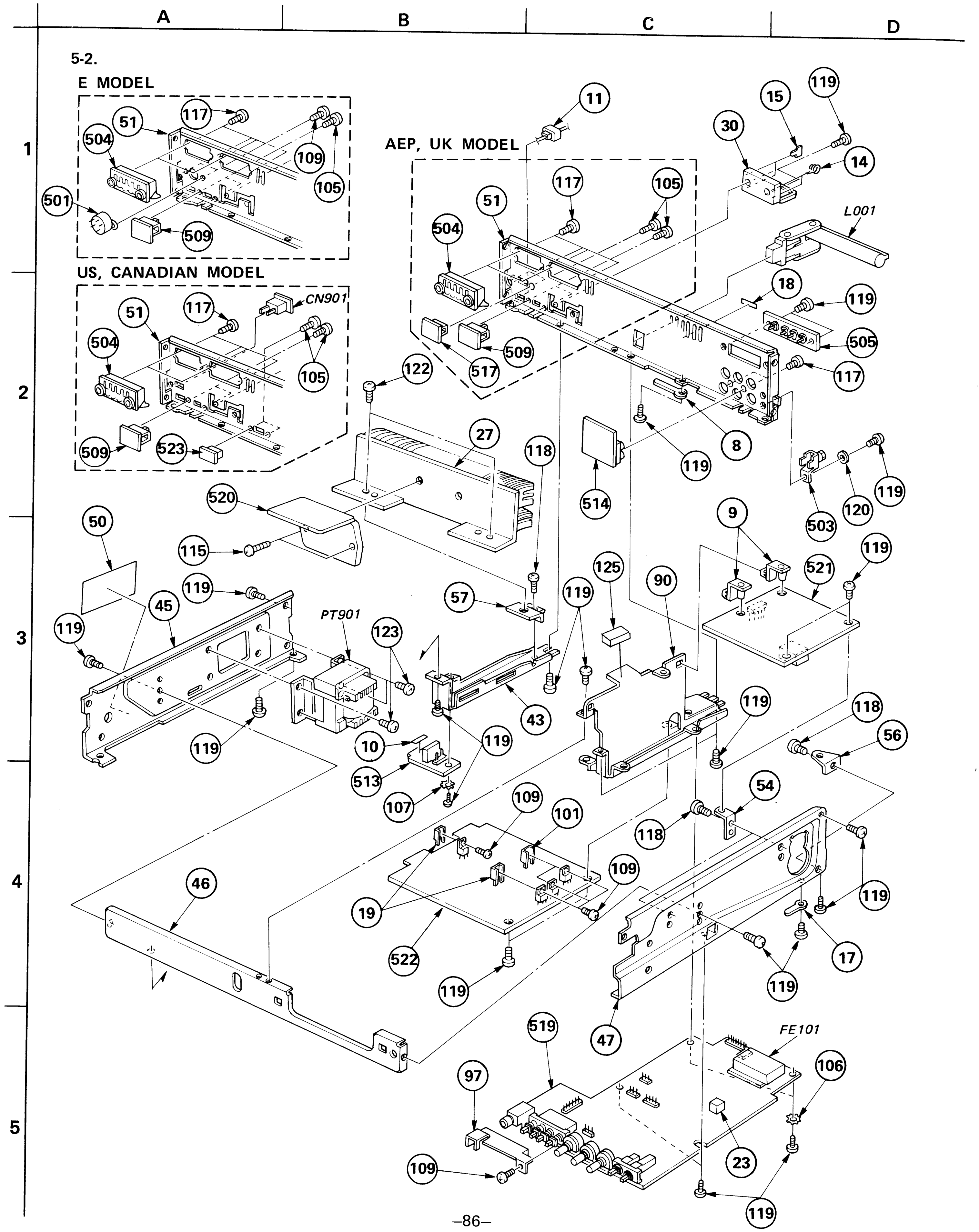
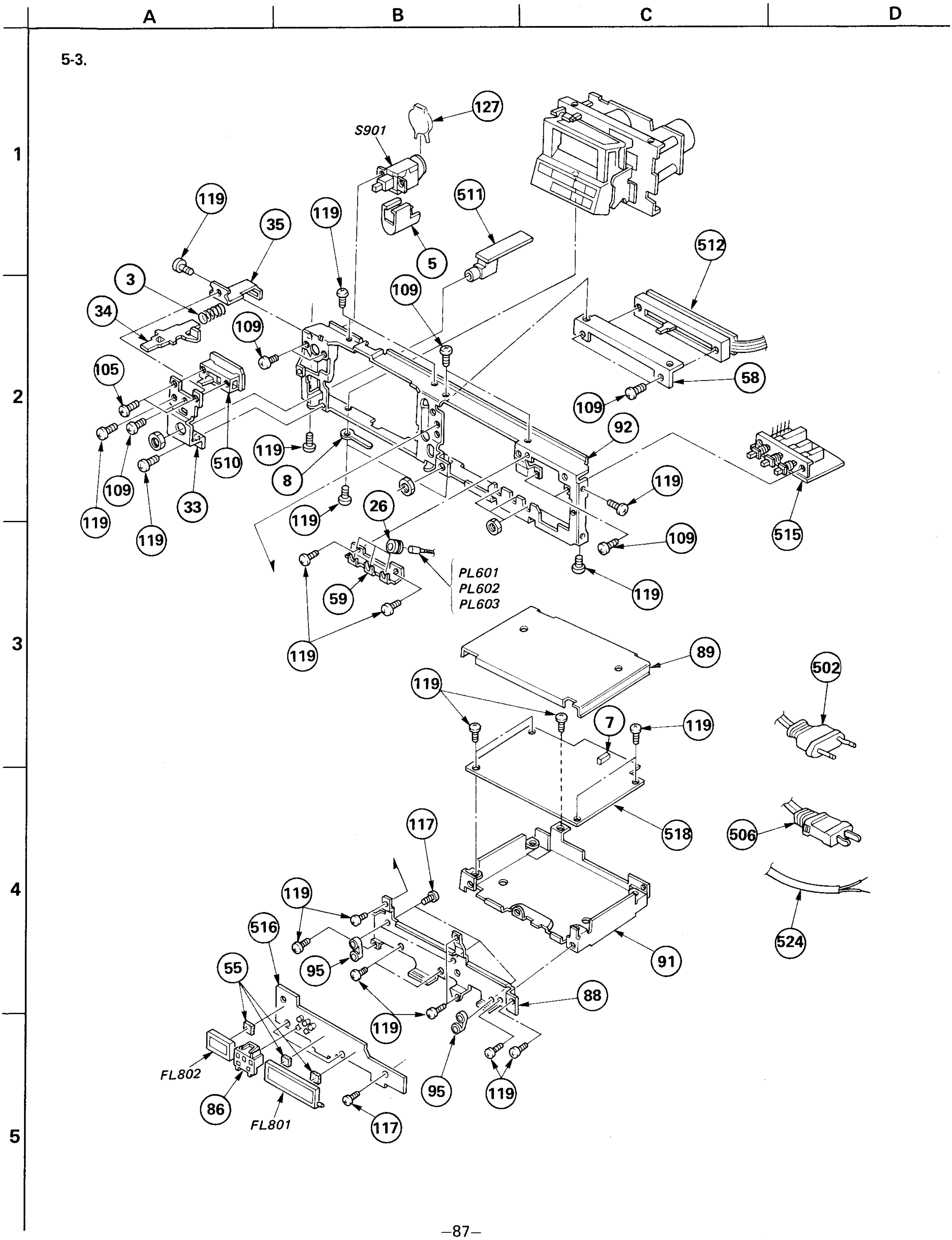
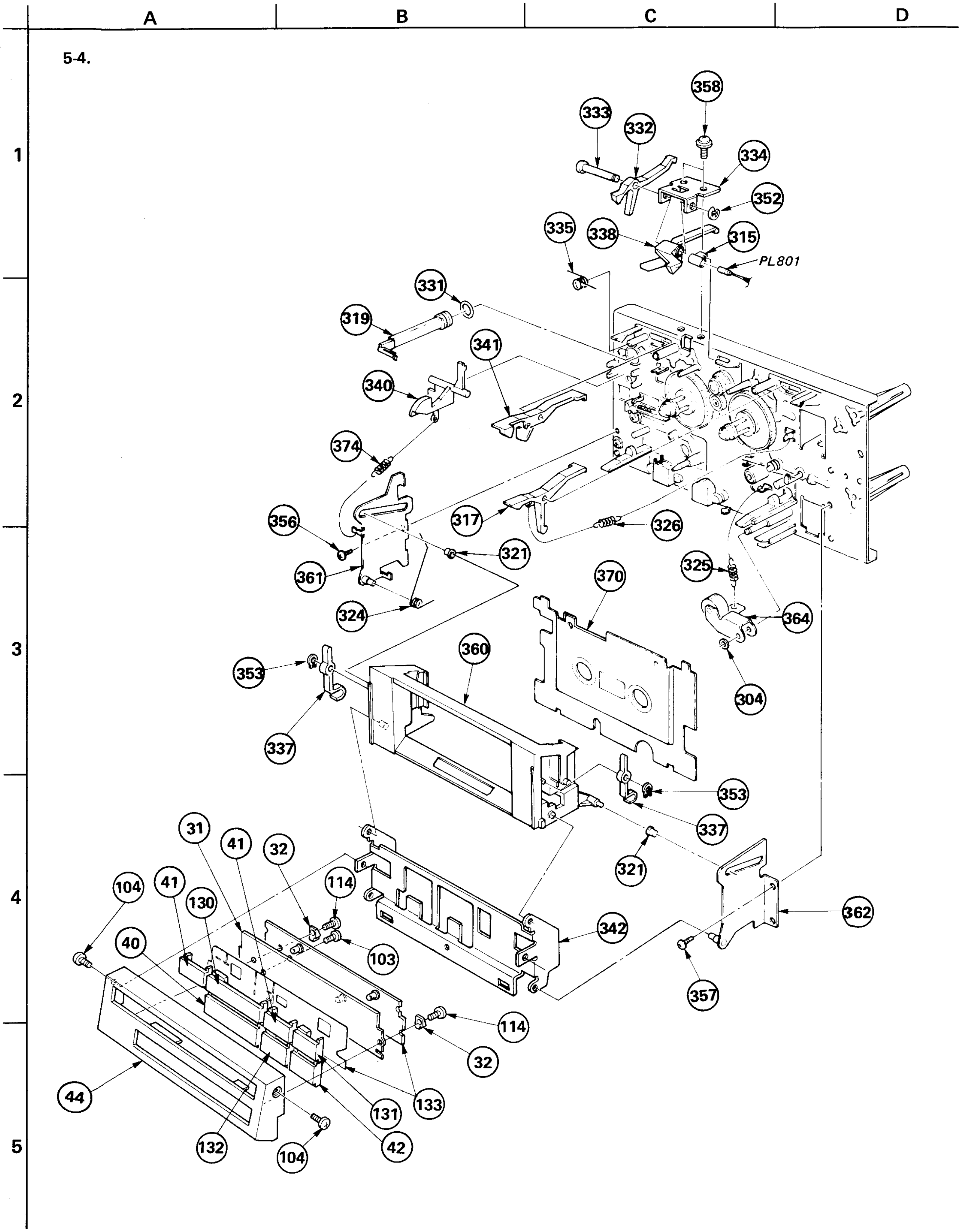
81
6
126
93
37
121
108
84
111
96
117


A
B
C
D
1
2
3
4
5
5-2.
E MODEL
51
117
109
105
504
501
509
US, CANADIAN MODEL
51
117
CN901
504
105
509
523
AEP, UK MODEL
11
117
105
51
504
509
517
15
119
30
14
L001
18
119
505
117
122
27
118
8
119
514
520
50
115
119
45
PT901
123
57
119
125
90
9
503
120
119
521
119
119
10
513
107
119
43
119
118
56
54
109
101
118
119
19
522
109
46
119
17
119
47
519
FE101
97
106
23
109
119

5-3.


A
B
C
D
S901
PL601
PL602
PL603
FL802
FL801

5-4.


A
B
C
D
PL801

A
B
C
D
1
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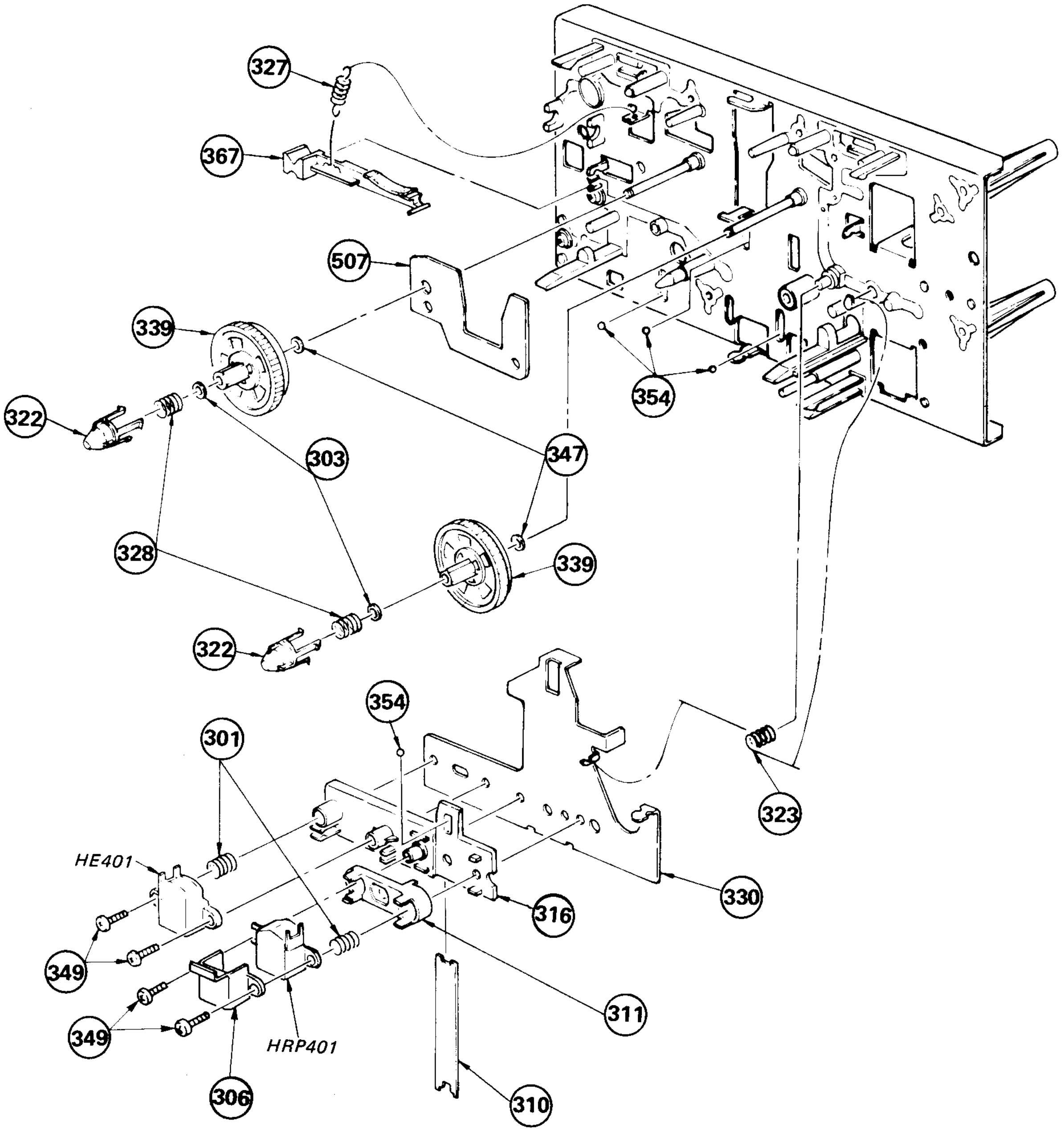
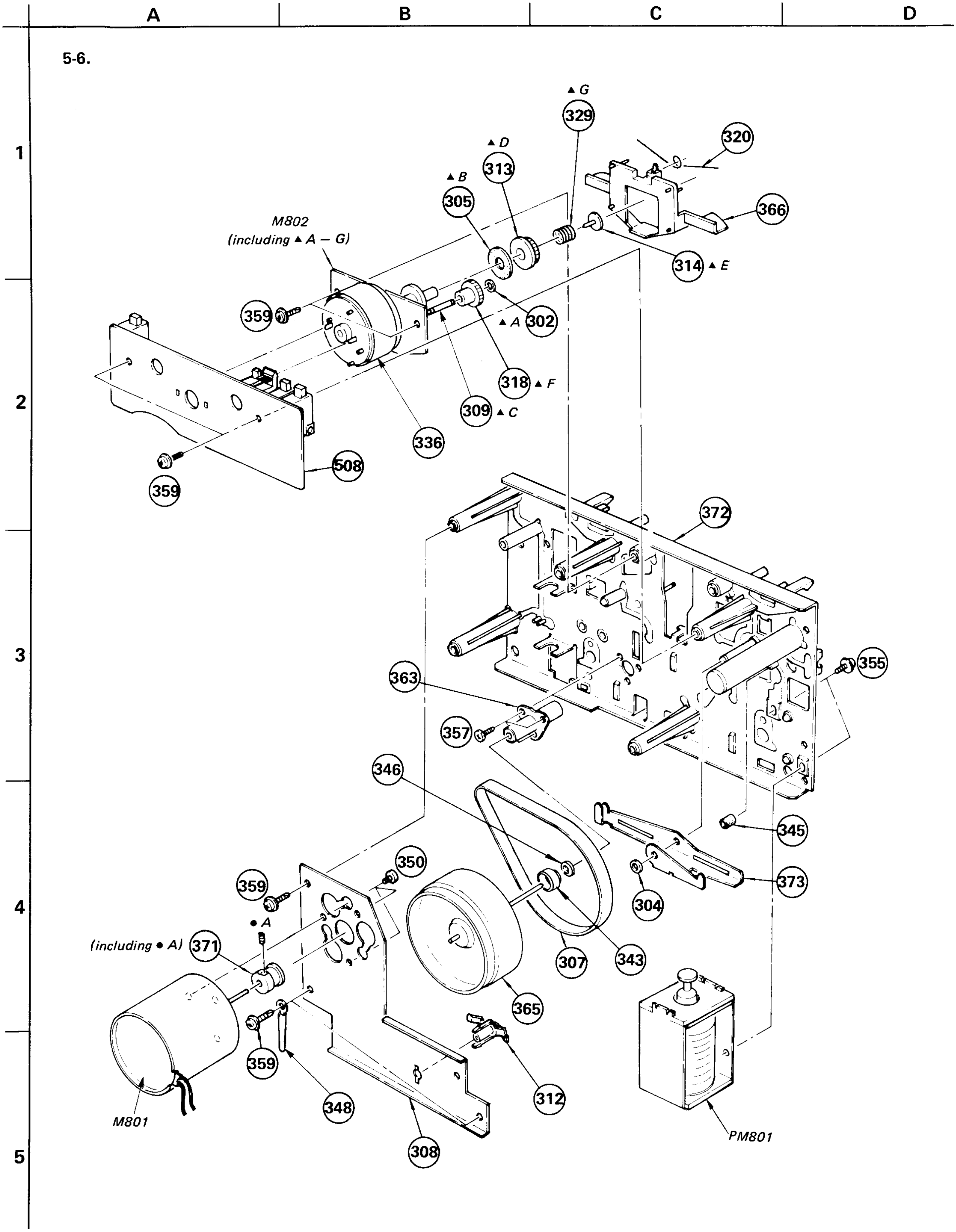
5

5-5.


HE401
HRP401

5-6.


A
B
C
D
▲G
▲D
▲B
314 ▲E
M802
(including ▲A – G)
▲A 302
318 ▲F
309 ▲C
●A
(including ● A) 371
M801
PM801

GENERAL SECTION

No.	Part No.	Description
1	3-302-902-11	KNOB, PUSH
2	3-703-079-21	(US,UK)...LABEL, SUB-CAUTION
3	3-570-064-00	SPRING, COMPRESSION
4	3-575-515-00	KNOB, SLIDE SWITCH
5	3-575-524-11	(AEP,UK,E)....COVER, POWER SWITCH
6	♠;3-653-311-00	SPRING, COMPRESSION
7	4-875-462-00	PLATE, REINFORCEMENT
8	3-701-822-00	HOLDER, WIRE
9	♠;3-701-832-00	HINGE, CIRCUIT BOARD
10	3-701-946-24	(Canadian)....LABEL, FUSE
11	3-703-244-00	BUSHING, CORD
12	3-703-354-11	SCREW (OS), CASE, CLAW
13	....	
14	3-883-424-00	SPRING
15	3-883-428-00	PLATE, TERMINAL (POSITIVE)
16	4-832-754-01	WASHER, FIBER
17	4-821-121-00	LUG
18	4-849-778-00	(AEP)....LABEL, FTZ
19	♠;4-854-790-00	HEAT SINK
20	4-860-711-00	FELT
21	4-864-307-00	RING
22	4-864-324-01	SPACER
23	♠;4-864-732-00	(AEP,UK)...CASE, SHIELD (A)
24	4-866-342-00	JOINT (B), KNOB
25	4-866-612-00	SPRING, COMPRESSION
26	4-866-622-00	HOLDER, LAMP
27	♠;4-868-919-00	HEAT SINK (LARGE)
28	4-874-020-00	SPRING, LEAF (L)
29	4-874-038-00	KNOB (DIA.16), R
30	4-875-530-00	CASE, BATTERY
31	♠;4-879-417-00	RETAINER, CONTROL BUTTON
32	4-879-420-00	BOSS, FITTING, PC BOARD
33	♠;4-879-423-00	BRACKET, HEADPHONE
34	♠;4-879-424-00	SLIDER, EJECT
35	♠;4-879-427-00	BRACKET, EJECT
36	4-879-432-00	HOLDER (L), BEARING
37	4-879-433-00	HOLDER (R), BEARING
38	4-879-436-00	ESCUTCHEON, BUTTON, EJECT
39	4-879-437-00	BUTTON, EJECT
40	4-879-444-00	BUTTON, STOP
41	4-879-445-00	BUTTON, FF, REW
42	4-879-448-00	BUTTON, REC MUTE
43	♠;4-879-449-00	BRACKET (P-1)
44	4-879-459-00	ESCUTCHEON, BUTTON, CONTROL
45	♠;4-879-460-00	PLATE (L), SIDE

GENERAL SECTION

No.	Part No.	Description
46	♠;4-879-461-00	PLATE, MIDWAY
47	♠;4-879-462-00	PLATE (R), SIDE
48	♠;4-879-463-00	PLATE, BOTTOM
49	4-879-466-11	CASE
50	♠;4-879-476-00	GUIDE, REPLACEMENT,TRANSFORMER
51	♠;4-879-801-02	(US,Canadian)...PLATE, JACK
51	♠;4-879-801-21	(AEP)...........PLATE, JACK
51	♠;4-879-801-31	(UK)............PLATE, JACK
51	♠;4-879-801-42	(E).............PLATE, JACK
52	♠;4-879-802-00	JOINT, CONTROL, SLIDE
53	♠;4-879-803-00	PLATE, GUIDE
54	♠;4-879-804-00	BRACKET, CHASSIS, CASSETTE
55	4-879-805-00	RETAINER (A), TUBE, DISPLAY
56	♠;4-879-806-00	BRACKET, CHASSIS, TUNER
57	♠;4-879-807-00	BRACKET, HEAT SINK
58	♠;4-879-808-00	BRACKET, CONTROL, SLIDE
59	♠;4-879-809-00	BRACKET, LAMP
60	4-879-810-00	JOINT, KNOB
61	4-879-811-00	JOINT, FUNCTION
62	4-879-812-00	KNOB, CONTROL, SLIDE
63	4-879-814-00	SHEET, INDICATOR
64	4-879-815-00	FILTER (S)
65	4-879-816-00	FILTER (R)
66	4-879-818-01	KNOB, FUNCTION
67	4-879-818-11	KNOB, FUNCTION
68	4-879-818-21	KNOB, FUNCTION
69	4-879-819-01	KNOB, SELECTOR, BAND
70	4-879-819-11	(AEP,UK)..........KNOB, SELECTOR, BAND
70	4-879-819-41	(US,Canadian,E)...KNOB, SELECTOR, BAND
71	4-879-819-21	(AEP,UK)..........KNOB, SELECTOR, BAND
71	4-879-820-61	(US,Canadian,E)...KNOB, PRESET
72	4-879-819-31	KNOB, MEMORY
73	4-879-820-01	KNOB, PRESET
74	4-879-820-11	KNOB, PRESET
75	4-879-820-21	KNOB, PRESET
76	4-879-820-31	KNOB, PRESET
77	4-879-820-41	KNOB, PRESET
78	4-879-820-51	KNOB, PRESET
79	4-879-848-00	SPACER (F)
80	4-879-821-00	KNOB, RESET, COUNTER
81	4-879-822-00	KNOB, TUNING
82	4-879-823-00	KNOB, PUSH (GRAY)
83	4-879-823-11	KNOB, PUSH (YELLOW)
84	4-879-824-00	LID (H)
85	4-879-825-00	PLATE, FROSTED
86	♠;4-879-826-00	HOUSE, LAMP

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CAPACITORS:

- All capacitors are in μF. Common capacitors are omitted. Refer to the following lists for their part numbers. MF:μF, PF:μμF.

RESISTORS

- All resistors are in ohms. Common 1/4W, 1/8W and 1/16W carbon resistors are omitted. Refer to the following lists for their part numbers.
- F : nonflammable

COILS

- MMH : mH, UH : μH

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SEMICONDUCTORS
In each case, U : μ, for example:
UA···: μA···, UPA···: μPA···, UPC···: μPC,
UPD···: μPD···

GENERAL SECTION

No.	Part No.	Description
87	4-879-827-01	PANEL, ORNAMENTAL
88	♠;4-879-829-00	HOLDER, SHIELD
89	♠;4-879-830-00	CASE (B), SHIELD
90	♠;4-879-831-00	BRACKET, CHASSIS
91	♠;4-879-832-00	CASE (A), SHIELD
92	♠;4-879-833-00	PANEL (H), SUB
93	4-879-835-11	ESCUTCHEON (A), PANEL
94	4-879-838-00	SLIDER
95	♠;4-879-839-00	HOLDER (D), PC BOARD
96	4-879-840-00	COVER (H), LID
97	4-879-841-00	PLATE, SHIELD
98	4-879-842-00	SHEET (OVERSEA), LAYOUT
99	4-879-844-00	SPACER, JOINT
100	4-879-845-00	ILLUMINATOR
101	♠;4-854-790-00	(US,Canadian,E)...HEAT SINK
101	♠;4-879-849-00	(AEP,UK)..........HEAT SINK (A)
102	7-621-775-20	SCREW +B 2.6X5
103	7-621-759-35	+PSW, 2.6X5
104	7-621-773-86	SCREW +B 2.6X4
105	7-621-775-10	SCREW +B 2.6X4
106	7-623-422-07	LW 3, TYPE B
107	7-623-422-07	(US,Canadian)...LW 3, TYPE B
108	7-682-247-09	SCREW +K 3X6
109	7-682-545-09	SCREW +B 3X4
110	7-685-233-19	SCREW +KTP 2.6X6 TYPE2NON-SLIT
111	7-685-246-14	SCREW +KTP 3X8 TYPE2 NON-SLIT
112	7-685-531-19	SCREW +BTP 2.6X4 TYPE2 N-S
113	7-685-534-29	SCREW +BTP 2.6X8 TYPE2 N-S
114	7-685-535-19	SCREW +BTP 2.6X10 TYPE2 N-S
115	7-685-550-24	SCREW +BVTP 3X16 TYPE2 SLIT
116	7-685-246-19	SCREW +KTP 3X8 TYPE2 NON-SLIT
117	7-685-646-11	SCREW +BVTP 3X8 TYPE2 N-S
118	7-685-870-01	SCREW +BVTT 3X5 (S)
119	7-685-871-01	SCREW +BVTT 3X6 (S)
120	7-688-003-13	WASHER 3
121	7-685-871-09	SCREW +BVTT 3X6 (S)
122	7-685-872-01	SCREW +BVTT 3X8 (S)
123	7-685-880-01	SCREW +BVTT 4X6 (S)
124	9-911-837-XX	CUSHION, FILTER
125	9-911-841-XX	CUSHION
126	9-911-844-XX	CUSHION
127	4-875-455-21	(AEP,UK,E)...COVER, CAPACITOR
128	X-4873-701-0	KNOB ASSY, POWER

GENERAL SECTION

No.	Part No.	Description
129	X-4879-404-2	LID ASSY, CASSETTE
130	X-4879-409-1	BUTTON ASSY, FWD
131	X-4879-410-1	BUTTON ASSY, REC
132	X-4879-411-1	BUTTON ASSY, PAUSE
133	X-4879-412-1	SWITCH ASSY, SHEET
134	X-4879-803-1	PANEL SUB ASSY, FRONT

ACCESSORY & PACKING MATERIAL

Part No.	Description
1-501-161-00	ANTENNA, FEEDER
⚠1-506-401-00	(E2).....ADAPTOR, AC PLUG
1-528-027-11	BATTERY, NEW SUPER (SUM-3)(NS)
3-701-630-00	BAG, POLYETHYLENE, FOR INSTRUCTION MANUAL
3-703-328-00	(AEP)...LABEL, APPROVAL 4 COUNTRY
3-703-390-01	(US)....INSTRUCTION, IMPORTANT SAFEGUARDS
3-703-538-01	(AEP)...INSTRUCTION, COMMONNESS
3-783-821-12	(AEP,UK).......MANUAL, INSTRUCTION
3-783-821-21	(US,Canadian)..MANUAL, INSTRUCTION
3-783-821-31	(Canadian).....MANUAL, INSTRUCTION, FRENCH
3-783-821-41	(E)............MANUAL, INSTRUCTION
3-783-821-51	(AEP)..........MANUAL, INSTRUCTION, DUTCH, SWEDISH
4-858-078-00	SHEET, PROTECTION, FOR SET
4-879-469-00	CUSHION (LEFT), LOWER
4-879-470-00	CUSHION (RIGHT), LOWER
4-879-471-00	CUSHION (FRONT), UPPER
4-879-472-00	CUSHION (REAR), UPPER
4-879-836-00	INDIVIDUAL CARTON
X-3701-105-0	ROD ASSY, CLEANING, HEAD

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COILS

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SEMICONDUCTORS

In each case, U : μ, for example:
UA···: μA···, UPA···: μPA···, UPC···: μPC, UPD···: μPD···

MECHANISM SECTION

No.	Part No.	Description
301	3-481-272-00	SPRING, COMPRESSION
302	3-558-708-01	WASHER, STOPPER
303	3-558-708-11	WASHER, STOPPER
304	3-558-708-21	WASHER, STOPPER
305	3-564-027-11	FELT, LIMITER
306	♠;3-564-100-00	PLATE (B), SHIELD, HEAD
307	3-564-319-00	BELT, CAPSTAN
308	♠;3-575-302-00	RETAINER, THRUST
309	3-575-304-00	SHAFT, GEAR, FR
310	♠;3-575-312-00	SPRING
311	3-575-320-00	BASE, ADJUSTMENT, HEAD
312	3-575-321-00	RETAINER, THRUST, CAPSTAN
313	3-575-324-00	GEAR, LIMITER
314	3-575-327-00	STOPPER
315	3-575-328-00	HOLDER, LAMP
316	3-575-330-00	BRACKET, HEAD
317	♠;3-575-331-00	LEVER, DETECTION, HALF
318	3-575-332-00	GEAR, FR
319	3-575-333-00	PISTON
320	3-575-345-00	SPRING
321	3-575-348-00	ROLLER, GUIDE, THREADING
322	3-575-350-00	CLAW, REEL TABLE
323	3-575-351-00	SPRING
324	3-575-356-00	SPRING
325	3-575-357-00	SPRING, TENSION
326	3-575-358-00	SPRING, TENSION
327	3-575-359-00	SPRING, TENSION
328	3-575-365-00	SPRING, COMPRESSION
329	3-575-368-00	SPRING, COMPRESSION
330	3-575-383-00	CHASSIS, HEAD
331	3-575-392-00	RING, PISTON
332	3-575-438-00	LEVER, DETECTION
333	♠;3-575-439-00	SHAFT, LEVER, DETECTION
334	♠;3-575-440-00	BRACKET, LEVER, DETECTION
335	3-575-441-00	SPRING
336	3-575-442-00	PLATE, SHIELD, MOTOR
337	3-575-443-00	SPRING
338	3-575-446-00	LEVER, DETECTION, METAL
339	3-575-447-00	TABLE, REEL
340	3-575-448-00	LEVER, LOCK
341	3-575-449-00	LEVER, DETECTION, REC
342	♠;3-575-450-00	LEVER, FULCRUM, HOLDER
343	3-576-734-00	WASHER, CAPSTAN
344	....	
345	3-652-612-11	CUSHION (B)

MECHANISM SECTION

No.	Part No.	Description
346	3-701-438-21	WASHER
347	3-701-439-21	WASHER
348	3-701-822-00	HOLDER, WIRE
349	3-703-496-00	SCREW + PWH2X14
350	7-621-259-15	SCREW +P 2.6X3
351	....	
352	7-624-104-04	STOP RING 2.0, TYPE -E
353	7-624-193-08	STOP RING 3, GRIP
354	7-671-112-11	BALL, STEEL
355	7-682-949-01	SCREW +PSW 3X10
356	7-685-860-01	SCREW +BVTT 2.6X4 (S)
357	7-685-861-01	SCREW +BVTT 2.6X5 (S)
358	7-685-870-01	SCREW +BVTT 3X5 (S)
359	7-687-246-21	SCREW, TOTSU PTPWH 3X8, TYPE2
360	X-3575-335-0	HOLDER ASSY, CASSETTE
361	♠;X-3575-301-0	PLATE (A) ASSY, HOLDER FULCRUM
362	♠;X-3575-302-0	PLATE (B) ASSY, FULCRUM
363	X-3575-303-0	METAL ASSY, CAPSTAN
364	X-3575-304-0	PINCH LEVER (T) ASSY
365	X-3575-305-0	FLYWHEEL (D) ASSY
366	X-3575-309-0	PLATE ASSY, BRAKE
367	X-3575-310-0	LEVER ASSY, TENSION, BACK
368	....	
369	....	
370	X-3575-327-3	RETAINER ASSY, CASSETTE
371	X-3575-328-1	PULLEY, MOTOR
372	♠;X-3575-334-0	CHASSIS ASSY, MECHANICAL
373	♠;3-575-307-00	LEVER, FWD
374	3-575-364-00	SPRING

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CAPACITORS:

- All capacitors are in μF. Common capacitors are omitted. Refer to the following lists for their part numbers. MF:μF, PF:μμF.

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- All resistors are in ohms. Common 1/4W, 1/8W and 1/16W carbon resistors are omitted. Refer to the following lists for their part numbers.
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COILS

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SEMICONDUCTORS

In each case, U : μ, for example:
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UPD···: μPD···

ELECTRICAL PARTS

Ref.No.	Part No.	Description
501	⚠.1-526-576-00	(E).....SELECTOR, POWER VOLTAGE
502	⚠.1-534-817-XX	(AEP)...CORD, POWER
502	⚠.1-555-734-00	(E).....CORD, POWER
503	1-536-523-00	TERMINAL, GROUNDING
504	1-536-627-00	TERMINAL BOARD 4P
505	1-536-684-00	TERMINAL BOARD (4P)
506	⚠.1-551-628-00	(US,Canadian)...CORD, POWER
507	♠;1-603-823-00	PC BOARD, PHOTO
508	♠;1-606-005-00	PC BOARD, MD
509	♠;1-606-388-00	PC BOARD, ISS
510	♠;1-606-391-00	PC BOARD, SPEAKER SWITCH
511	♠;1-606-394-00	PC BOARD, HEADPHONE JACK
512	♠;1-606-395-00	PC BOARD, VOLUME
513	♠;1-606-397-00	PC BOARD, BREAKER
514	♠;1-606-399-00	PC BOARD, PIN LACK
515	♠;1-606-400-00	PC BOARD, FUNCTION
516	♠;1-606-401-00	PC BOARD, DISPLAY
517	♠;1-606-403-00	(AEP,UK)...PC BOARD, LW CHANNEL PLAN
518	♠;1-606-402-00	PC BOARD, CONTROL
518	♠;A-4483-018-A	(US,Canadian)...MOUNTED PCB, CONTROL
518	♠;A-4483-019-A	(AEP,UK)........MOUNTED PCB, CONTROL
518	♠;A-4483-020-A	(E).............MOUNTED PCB, CONTROL
519	♠;1-606-398-00	PC BOARD, TUNER
519	♠;A-4351-278-A	(US,Canadian)...MOUNTED PCB, TUNER
519	♠;A-4351-279-A	(AEP,UK)........MOUNTED PCB, TUNER
519	♠;A-4351-280-A	(E).............MOUNTED PCB, TUNER
520	♠;1-606-393-00	PC BOARD, POWER IC
520	♠;A-4388-299-A	(US,E).......MOUNTED PCB, POWER IC
520	♠;A-4388-300-A	(AEP,UK).....MOUNTED PCB, POWER IC
520	♠;A-4388-315-A	(Canadian)...MOUNTED PCB, POWER IC
521	♠;1-606-387-00	PC BOARD, CASSETTE
521	♠;A-4393-015-A	(US,Canadian,E)..MOUNTED PCB, CASSETTE
521	♠;A-4393-016-A	(AEP,UK).........MOUNTED PCB, CASSETTE
522	♠;1-606-392-00	PC BOARD, POWER
522	♠;A-4394-270-A	(AEP,UK).....MOUNTED PCB, POWER
522	♠;A-4394-282-A	(Canadian)...MOUNTED PCB, POWER
522	♠;A-4394-269-A	(US,E).......MOUNTED PCB, POWER
523	♠;1-606-403-00	(US,Canadian)..PC BOARD, AW CHANNEL PLAN
524	⚠.1-551-884-00	(UK).......CORD, POWER
C002	1-161-319-00	(AEP,UK)...CERAMIC 470PF 10% 50V
C053	1-123-392-00	ELECT 1000MF 20% 6.3V
C123	1-161-380-00	(US,Canadian)..CERAMIC 0.0015MF 10% 50V
C124	1-161-380-00	(US,Canadian)..CERAMIC 0.0015MF 10% 50V
C405	1-123-228-00	ELECT (NONPOLAR) 1MF 20% 50V
C411	1-130-620-00	FILM 0.01MF 5% 50V

ELECTRICAL PARTS

Ref.No.	Part No.	Description
C412	1-130-627-00	FILM 0.039MF 5% 50V
C416	1-130-628-00	FILM 0.047MF 5% 50V
C423	1-130-620-00	FILM 0.01MF 5% 50V
C424	1-130-621-00	FILM 0.012MF 5% 50V
C429	1-130-623-00	FILM 0.018MF 5% 50V
C460	1-107-181-00	SILVERD MICA 330PF 5% 500V
C461	1-129-704-00	(AEP,UK)...FILM 0.0015MF 10% 630V
C505	1-123-228-00	ELECT(NONPOLAR)1MF 20% 50V
C511	1-130-620-00	FILM 0.01MF 5% 50V
C512	1-130-627-00	FILM 0.039MF 5% 50V
C516	1-130-628-00	FILM 0.047MF 5% 50V
C523	1-130-620-00	FILM 0.01MF 5% 50V
C524	1-130-621-00	FILM 0.012MF 5% 50V
C529	1-130-623-00	FILM 0.018MF 5% 50V
C821	1-130-627-00	FILM 0.039MF 5% 50V
C822	1-161-314-00	CERAMIC 180PF 10% 50V
C824	1-161-314-00	CERAMIC 180PF 10% 50V
C832	1-125-157-00	ELECT(BLOCK) 6800MF 20% 42V
C833	1-125-157-00	ELECT(BLOCK) 6800MF 20% 42V
C901	⚠.1-161-744-00	(AEP,UK,E)......CERAMIC 10000PF 400V
C901	⚠.1-161-749-00	(US,Canadian)...CERAMIC 10000PF 125V
C902	⚠.1-108-389-00	(AEP,UK)...FILM 0.1MF 20% 100V
C903	⚠.1-108-389-00	(AEP,UK)...FILM 0.1MF 20% 100V
C904	⚠.1-108-389-00	(AEP,UK)...FILM 0.1MF 20% 100V
C905	⚠.1-108-389-00	(AEP,UK)...FILM 0.1MF 20% 100V
CB651	1-532-566-00	BREAKER, CIRCUIT
CB751	1-532-566-00	BREAKER, CIRCUIT
CB901	⚠.1-532-521-11	(US,Canadian)...BREAKER, CIRCUIT
CB901	⚠.1-532-541-00	(AEP,UK)........BREAKER, CIRCUIT
CB901	⚠.1-532-542-00	(E).............BREAKER, CIRCUIT
CB902	⚠.1-532-541-00	(E).............BREAKER, CIRCUIT
CF001	1-527-817-00	FILTER, CERAMIC
CF002	1-527-826-00	FILTER, CERAMIC
CF101	1-527-567-00	(US,Canadian,E)...FILTER, CERAMIC
CF101	1-527-799-00	(AEP,UK)..........FILTER, CERAMIC
CF102	1-527-567-00	(US,Canadian,E)...FILTER, CERAMIC
CF102	1-527-799-00	(AEP,UK)..........FILTER, CERAMIC
CF103	1-527-799-00	(AEP,UK)..........FILTER, CERAMIC
CF801	1-527-522-00	RADIATOR, CERAMIC
CN901	⚠.1-526-609-00	(US,Canadian)...CONNECTOR, AC OUTLET

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ELECTRICAL PARTS

Ref.No.	Part No.	Description
CNJ201 CNJ202 CNJ203 CNJ301 CNJ302 CNJ303	1-507-746-21	JACK, PIN 6P
CP801	1-232-219-00	COMPOSITION CIRCUIT BLOCK
CP802	1-231-701-00	COMPOSITION CIRCUIT BLOCK
CP803	1-232-134-00	COMPOSITION CIRCUIT BLOCK
CP901⚠	1-102-394-00	(US,Canadian,E)...CERAMIC 0.01MF+0.01MF 250V
CP902⚠	1-102-394-00	(US,Canadian,E)...CERAMIC 0.01MF+0.01MF 250V
CP903⚠	1-102-394-00	CERAMIC 0.01MF+0.01MF 250V
CP904⚠	1-102-394-00	CERAMIC 0.01MF+0.01MF 250V
CP905⚠	1-102-394-00	CERAMIC 0.01MF+0.01MF 250V
CT001	1-141-180-00	CAP, TRIMMER
CT002	1-141-181-11	CAP, TRIMMER
CT003	1-141-180-00	(AEP,UK)....CAP, TRIMMER
CT004	1-141-181-11	(AEP,UK)....CAP, TRIMMER
D001	8-719-912-27	DIODE KV1226
D002	8-719-912-27	(AEP,UK)...DIODE KV1226
D003	8-712-600-00	(AEP,UK)...DIODE 1T26
D004	8-712-600-00	(AEP,UK)...DIODE 1T26
D005	8-719-815-55	DIODE 1S1555
D006	8-719-815-55	DIODE 1S1555
D051	8-719-936-05	DIODE EQA01-05R
D052	8-719-931-24	DIODE EQB01-24
D053	8-719-931-30	DIODE EQB01-30
D054	8-719-931-06	DIODE EQB01-06
D055	8-719-912-00	(AEP,UK)...DIODE MV12N
D056	8-719-912-00	DIODE MV12N
D057	8-719-815-55	DIODE 1S1555
D058	8-719-815-55	DIODE 1S1555
D059	8-719-815-55	DIODE 1S1555
D060	8-719-815-55	DIODE 1S1555
D061	8-719-815-55	DIODE 1S1555
D062	8-719-815-55	(AEP,UK)...DIODE 1S1555
D063	8-719-815-55	DIODE 1S1555
D064	8-719-815-55	(AEP,UK)...DIODE 1S1555
D065	8-719-815-55	(AEP,UK)...DIODE 1S1555
D066	8-719-815-55	DIODE 1S1555
D067	8-719-815-55	DIODE 1S1555
D068	8-719-815-55	DIODE 1S1555
D071	8-719-815-55	DIODE 1S1555
D072	8-719-815-55	DIODE 1S1555
D073	8-719-815-55	DIODE 1S1555
D074	8-719-815-55	DIODE 1S1555

ELECTRICAL PARTS

Ref.No.	Part No.	Description
D075	8-719-815-55	DIODE 1S1555
D076	8-719-815-55	DIODE 1S1555
D077	8-719-815-55	DIODE 1S1555
D078	8-719-815-55	DIODE 1S1555
D082	8-719-815-55	DIODE 1S1555
D083	8-719-815-55	(AEP,UK,E)...DIODE 1S1555
D084	8-719-815-55	(AEP,UK)........DIODE 1S1555
D085	8-719-815-55	(US,Canadian)...DIODE 1S1555
D101	8-719-815-55	DIODE 1S1555
D102	8-719-815-55	DIODE 1S1555
D103	8-719-815-55	DIODE 1S1555
D104	8-719-815-55	DIODE 1S1555
D105	8-719-815-55	DIODE 1S1555
D106	8-719-815-55	DIODE 1S1555
D107	8-719-815-55	DIODE 1S1555
D108	8-719-815-55	DIODE 1S1555
D109	8-719-815-55	DIODE 1S1555
D110	8-719-815-55	DIODE 1S1555
D401	8-719-815-55	DIODE 1S1555
D402	8-719-815-55	DIODE 1S1555
D403	8-719-815-55	DIODE 1S1555
D404	8-719-815-55	DIODE 1S1555
D405	8-719-815-55	DIODE 1S1555
D406	8-719-815-55	DIODE 1S1555
D407	8-719-815-55	DIODE 1S1555
D408	8-719-815-55	DIODE 1S1555
D409	8-719-815-55	DIODE 1S1555
D801	8-719-815-55	DIODE 1S1555
D802	8-719-200-02	DIODE 10E2
D803	8-719-200-02	DIODE 10E2
D804	8-719-815-55	DIODE 1S1555
D805	8-719-815-55	DIODE 1S1555
D806	8-719-934-32	DIODE AR3432S
D807	8-719-914-32	DIODE PG3432S
D808	8-719-934-34	DIODE AA3432S
D809	8-719-815-55	DIODE 1S1555
D810	8-719-815-55	DIODE 1S1555
D814	8-719-930-11	DIODE EQB01-11Z
D815	8-719-930-11	DIODE EQB01-11Z
D816	8-719-931-16	DIODE EQB01-16
D820	8-719-907-83	DIODE PG5535SY
D821	8-719-907-83	DIODE PG5535SY
D822	8-719-907-83	DIODE PG5535SY
D824	8-719-907-80	DIODE AA5535S
D825	8-719-907-84	DIODE PR5535S

NOTE:

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- Items marked " ♠ " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Due to standardization, parts with part numbers (△-△△△-△△△-XX or △-△△△△-△△△-X) may be different from those used in the set.

CAPACITORS:

- All capacitors are in μF. Common capacitors are omitted. Refer to the following lists for their part numbers. MF:μF, PF:μμF.

RESISTORS

- All resistors are in ohms. Common 1/4W, 1/8W and 1/16W carbon resistors are omitted. Refer to the following lists for their part numbers.
- F : nonflammable

COILS

- MMH : mH, UH : μH

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

Les composants identifiés par une trame et une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

SEMICONDUCTORS

In each case, U : μ, for example:
UA···: μA···, UPA···: μPA···, UPC···: μPC, UPD···: μPD···

ELECTRICAL PARTS

Ref.No.	Part No.	Description
D891	8-719-815-55	DIODE 1S1555
D892	8-719-815-55	DIODE 1S1555
D893	8-719-815-55	DIODE 1S1555
D901	⚠8-719-504-40	DIODE S4VB40
D902	⚠8-719-502-20	DIODE S2VB20
D903	⚠8-719-200-02	DIODE 10E2
D904	⚠8-719-200-02	DIODE 10E2
D905	⚠8-719-815-85	DIODE 1S1585
FE101	1-463-369-00	FRONT END
FL801	1-519-240-00	(AEP,UK)...DISPLAY TUBE, FLUORESCENT
FL801	1-519-241-00	(US,Canadian,E) ...DISPLAY TUBE, FLUORESCENT
FL802	1-519-221-31	DISPLAY TUBE, FLUORESCENT
HE401	8-825-724-00	HEAD, ERASE EF201-36
HRP401	8-829-373-30	HEAD, REC/PB (PP181-3602C)
IC001	8-759-100-00	IC UPB553AC
IC002	8-759-812-45	IC LA1245
IC051	8-759-100-59	IC UPD1703C522
IC052	8-759-140-11	IC UPD4011BC
IC053	8-759-140-11	(AEP,UK)...IC UPD4011BC
IC054	8-759-240-66	(AEP,UK)...IC TC4066BP
IC101	8-759-812-35	IC LA1235
IC102	8-759-833-90	IC LA3390
IC201	8-759-145-58	IC UPC4558C
IC202	8-759-145-58	IC UPC4558C
IC251	8-759-745-61	IC NJM4560D-D
IC302	8-759-145-58	IC UPC4558C
IC401	8-759-705-62	IC NJM4562D-D
IC402	8-759-300-74	IC CX174A
IC502	8-759-300-74	IC CX174A
IC601	8-759-145-58	IC UPC4558C
IC651	8-749-946-30	IC STK463
IC801	8-759-948-36	IC MSM5836RS
IC802	8-759-240-27	IC TC4027BP
IC803	8-759-240-69	IC TC4069UBP
IC804	8-759-150-47	IC UPD550C047
J201	1-507-765-00	JACK, LARGE TYPE
J651	1-507-766-00	JACK, LARGE TYPE

ELECTRICAL PARTS

Ref.No.	Part No.	Description
L001	1-401-888-00	(AEP,UK)..........ANTENNA, FERRITE-ROD(LW/MW)
L001	1-401-914-31	(US,Canadian,E)...ANTENNA, FERRITE-ROD (MW)
L002	1-408-195-00	MICRO INDUCTOR 100UH
L003	1-405-927-00	COIL, MW OSC
L004	1-405-914-00	(AEP,UK)...COIL, LW OSC
L005	1-408-199-00	(AEP,UK)...MICRO INDUCTOR 220UH
L006	1-404-326-00	TRANSFORMER, IF
L007	1-407-182-XX	(AEP,UK)...MICRO INDUCTOR 2.2UH
L008	1-407-183-XX	MICRO INDUCTOR 2.7UH
L051	1-408-203-00	MICRO INDUCTOR 470UH
L101	1-231-657-00	(AEP,UK)...FILTER LOWPASS
L102	1-404-327-00	TRANSFORMER, DISCRIMINATOR
L103	1-404-328-00	TRANSFORMER, DISCRIMINATOR
L104	1-235-085-00	FILTER, LOW PASS
L105	1-235-085-00	FILTER, LOW PASS
L106	1-235-086-00	FILTER, LOW PASS
L107	1-235-086-00	FILTER, LOW PASS
L108	1-408-183-00	MICRO INDUCTOR 10UH
L401	1-408-262-00	MICRO INDUCTOR 27MMH
L501	1-408-262-00	MICRO INDUCTOR 27MMH
L651	●;1-420-872-00	COIL
L751	●;1-420-872-00	COIL
L801	1-407-163-XX	MICRO INDUCTOR 33UH
L802	1-407-163-XX	MICRO INDUCTOR 33UH
L821	1-408-133-31	MICRO INDUCTOR 220UH
M801	8-835-049-01	MOTOR, DC (DNE-4100A)
M802	X-3575-313-1	MOTOR ASSY, REEL
PL601	1-518-481-00	LAMP, PILOT
PL602	1-518-481-00	LAMP, PILOT
PL603	1-518-481-00	LAMP, PILOT
PL801	1-518-313-00	LAMP, PILOT
PM801	X-3575-316-00	SOLENOID ASSY
PT901	⚠1-447-187-00	(AEP,UK)........TRANSFORMER, POWER
PT901	⚠1-447-188-00	(US,Canadian)...TRANSFORMER, POWER
PT901	⚠1-447-206-00	(E).............TRANSFORMER, POWER
Q011	8-729-201-52	TRANSISTOR 2SA1015
Q012	8-729-663-47	TRANSISTOR 2SC1364
Q014	8-729-663-47	TRANSISTOR 2SC1364
Q051	8-729-201-52	TRANSISTOR 2SA1015
Q052	8-729-201-52	TRANSISTOR 2SA1015
Q053	8-729-201-52	TRANSISTOR 2SA1015
Q054	8-729-201-52	TRANSISTOR 2SA1015
Q055	8-729-201-52	TRANSISTOR 2SA1015
Q056	8-729-665-47	(AEP,UK)...TRANSISTOR 2SC1362

NOTE:

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- Due to standardization, parts with part numbers (Δ-ΔΔΔ-ΔΔΔ-XX or Δ-ΔΔΔΔ-ΔΔΔ-X) may be different from those used in the set.

CAPACITORS:

- All capacitors are in µF. Common capacitors are omitted. Refer to the following lists for their part numbers.

MF:µF, PF:µµF.

RESISTORS

- All resistors are in ohms. Common 1/4W, 1/8W and 1/16W carbon resistors are omitted. Refer to the following lists for their part numbers.
- F : nonflammable

COILS

- MMH : mH, UH : µH

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

Les composants identifiés par une trame et une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

SEMICONDUCTORS

In each case, U : µ, for example:
UA···: µA···, UPA···: µPA···, UPC···: µPC,
UPD···: µPD···

ELECTRICAL PARTS

Ref.No.	Part No.	Description
Q057	8-729-665-47	TRANSISTOR 2SC1362
Q058	8-729-203-06	(AEP,UK)...TRANSISTOR 2SK30A-GR2
Q059	8-729-203-06	TRANSISTOR 2SK30A-GR2
Q060	8-729-663-47	TRANSISTOR 2SC1364
Q101	8-729-671-14	TRANSISTOR 2SC710-14
Q102	8-729-663-47	TRANSISTOR 2SC1364
Q103	8-729-663-47	TRANSISTOR 2SC1364
Q104	8-729-663-47	TRANSISTOR 2SC1364
Q105	8-729-663-47	TRANSISTOR 2SC1364
Q106	8-729-201-52	TRANSISTOR 2SA1015
Q107	8-729-663-47	TRANSISTOR 2SC1364
Q108	8-729-201-52	TRANSISTOR 2SA1015
Q109	8-729-201-52	TRANSISTOR 2SA1015
Q110	8-729-663-47	TRANSISTOR 2SC1364
Q111	8-729-201-52	TRANSISTOR 2SA1015
Q112	8-729-201-52	TRANSISTOR 2SA1015
Q156	8-729-201-52	(AEP,UK)...TRANSISTOR 2SA1015
Q157	8-729-663-47	(AEP,UK)...TRANSISTOR 2SC1364
Q201	8-729-629-12	TRANSISTOR 2SC2291
Q202	8-729-663-47	TRANSISTOR 2SC1364
Q203	8-729-663-47	TRANSISTOR 2SC1364
Q204	8-729-663-47	TRANSISTOR 2SC1364
Q205	8-729-384-48	TRANSISTOR 2SA844
Q206	8-729-663-47	TRANSISTOR 2SC1364
Q251	8-729-663-47	TRANSISTOR 2SC1364
Q252	8-729-201-52	TRANSISTOR 2SA1015
Q302	8-729-663-47	TRANSISTOR 2SC1364
Q306	8-729-663-47	TRANSISTOR 2SC1364
Q401	8-729-663-47	TRANSISTOR 2SC1364
Q402	8-729-663-47	TRANSISTOR 2SC1364
Q403	8-729-663-47	TRANSISTOR 2SC1364
Q404	8-729-663-47	TRANSISTOR 2SC1364
Q405	8-729-663-47	TRANSISTOR 2SC1364
Q406	8-729-663-47	TRANSISTOR 2SC1364
Q407	8-729-663-47	TRANSISTOR 2SC1364
Q408	8-729-384-48	TRANSISTOR 2SA844
Q409	8-729-663-47	TRANSISTOR 2SC1364
Q410	8-729-663-47	TRANSISTOR 2SC1364
Q411	8-729-663-47	TRANSISTOR 2SC1364
Q412	8-729-663-47	TRANSISTOR 2SC1364
Q413	8-729-663-47	TRANSISTOR 2SC1364
Q501	8-729-663-47	TRANSISTOR 2SC1364
Q502	8-729-663-47	TRANSISTOR 2SC1364
Q503	8-729-663-47	TRANSISTOR 2SC1364
Q504	8-729-663-47	TRANSISTOR 2SC1364

ELECTRICAL PARTS

Ref.No.	Part No.	Description
Q505	8-729-663-47	TRANSISTOR 2SC1364
Q506	8-729-663-47	TRANSISTOR 2SC1364
Q651	8-729-201-04	TRANSISTOR 2SC2878-A
Q751	8-729-201-04	TRANSISTOR 2SC2878-A
Q801	8-729-384-48	TRANSISTOR 2SA844
Q802	8-729-110-21	TRANSISTOR PH102
Q803	8-729-110-21	TRANSISTOR PH102
Q805	8-729-663-47	TRANSISTOR 2SC1364
Q806	8-729-384-48	TRANSISTOR 2SA844
Q807	8-729-384-48	TRANSISTOR 2SA844
Q808	8-729-801-22	TRANSISTOR 2SD1012
Q809	8-729-663-47	TRANSISTOR 2SC1364
Q810	8-729-283-42	TRANSISTOR 2SB834
Q811	8-729-801-22	TRANSISTOR 2SD1012
Q812	8-729-801-22	TRANSISTOR 2SD1012
Q813	8-729-880-82	TRANSISTOR 2SB808
Q814	8-729-880-82	TRANSISTOR 2SB808
Q815	8-729-663-47	TRANSISTOR 2SC1364
Q816	8-729-663-47	TRANSISTOR 2SC1364
Q817	8-729-663-47	TRANSISTOR 2SC1364
Q818	8-729-663-47	TRANSISTOR 2SC1364
Q819	8-729-663-47	TRANSISTOR 2SC1364
Q820	8-729-663-47	TRANSISTOR 2SC1364
Q821	8-729-663-47	TRANSISTOR 2SC1364
Q822	8-729-663-47	TRANSISTOR 2SC1364
Q823	8-729-663-47	TRANSISTOR 2SC1364
Q824	8-729-663-47	TRANSISTOR 2SC1364
Q825	8-729-288-02	TRANSISTOR 2SD880
Q826	8-729-283-42	TRANSISTOR 2SB834
Q827	8-729-288-02	TRANSISTOR 2SD880
Q828	8-729-288-02	TRANSISTOR 2SD880
Q829	8-729-663-47	TRANSISTOR 2SC1364
Q830	8-729-186-23	TRANSISTOR 2SD862
Q831	8-729-663-47	TRANSISTOR 2SC1364
Q832	8-729-201-52	TRANSISTOR 2SA1015
Q833	8-729-663-47	TRANSISTOR 2SC1364
R008	1-202-591-00	(US,Canadian)...COMPOSITION 5.6K 5% 1/2W
R107	⚠.1-247-095-00	(AEP,UK)...CARBON 33 5% 1/4W F
R249	⚠.1-247-254-00	CARBON 3.9K 5% 1/2W F
R349	⚠.1-247-254-00	CARBON 3.9K 5% 1/2W F
R657	⚠.1-247-188-00	CARBON 4.7 5% 1/2W F
R658	⚠.1-247-188-00	CARBON 4.7 5% 1/2W F
R659	1-207-615-00	METAL 0.33 10% 2W

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CAPACITORS:

- All capacitors are in μF. Common capacitors are omitted. Refer to the following lists for their part numbers. MF:μF, PF:μμF.

RESISTORS

- All resistors are in ohms. Common 1/4W, 1/8W and 1/16W carbon resistors are omitted. Refer to the following lists for their part numbers.
- F : nonflammable

COILS

- MMH : mH, UH : μH

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une trame et une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

SEMICONDUCTORS
In each case, U : μ, for example:
UA···: μA···, UPA···: μPA···, UPC···: μPC,
UPD···: μPD···

ELECTRICAL PARTS

Ref.No.	Part No.	Description
R660	⚠ 1-247-216-00	CARBON 100 5% 1/2W F
R661	⚠ 1-247-228-00	CARBON 330 5% 1/2W F
R757	⚠ 1-247-188-00	CARBON 4.7 5% 1/2W F
R758	⚠ 1-247-188-00	CARBON 4.7 5% 1/2W F
R759	1-207-615-00	METAL 0.33 10% 2W
R761	⚠ 1-247-228-00	CARBON 330 5% 1/2W F
R836	⚠ 1-206-479-00	(AEP,UK)..........METAL 47 5% 2W F
R836	⚠ 1-206-640-00	(US,Canadian,E)...METAL 100 5% 2W F
R839	⚠ 1-206-640-00	(US,Canadian).....METAL 100 5% 2W F
R839	⚠ 1-206-479-00	(AEP,UK)..........METAL 47 5% 2W F
R839	⚠ 1-206-914-00	(E)...............METAL 82 5% 3W F
R863	1-244-849-00	CARBON 100 5% 1/2W
R870	⚠ 1-206-481-00	(US,Canadian,E)...METAL 56 5% 2W F
R870	⚠ 1-206-479-00	(AEP,UK)..........METAL 47 5% 2W F
R872	⚠ 1-247-107-00	CARBON 100 5% 1/4W F
R873	⚠ 1-247-107-00	CARBON 100 5% 1/4W F
R891	⚠ 1-247-188-00	CARBON 4.7 5% 1/2W F
R897	⚠ 1-247-079-00	CARBON 4.7 5% 1/4W F
R901	⚠ 1-202-723-00	(US,Canadian)...COMPOSITION 2.2M 10% 1/2W
RT101	1-224-646-XX	RES, ADJ, CARBON 22K
RT102	1-224-645-XX	RES, ADJ, CARBON 10K
RT103	1-224-648-XX	(AEP,UK)..........RES, ADJ, CARBON 100K
RT103	1-224-647-XX	(US,Canadian,E)...RES, ADJ, CARBON 47K
RT104	1-224-646-XX	RES, ADJ, CARBON 22K
RV401	1-226-236-00	RES, ADJ, CARBON 10K
RV402	1-226-238-00	RES, ADJ, CARBON 50K
RV403	1-226-240-00	RES, ADJ, CARBON 200K
RV501	1-226-236-00	RES, ADJ, CARBON 10K
RV502	1-226-238-00	RES, ADJ, CARBON 50K
RV503	1-226-240-00	RES, ADJ, CARBON 200K
RV601 RV701	1-228-381-00	RES, VAR, SLIDE 250K
RV602	1-228-414-00	RES, VAR, CARBON 250K
RV603 RV703	1-228-416-00	RES, VAR, CARBON 100K/100K
RV604 RV704	1-228-416-00	RES, VAR, CARBON 100K/100K
RY401	1-515-323-00	RELAY

ELECTRICAL PARTS

Ref.No.	Part No.	Description
S001	1-553-856-00	SWITCH, KEY BOARD
S002	1-553-856-00	SWITCH, KEY BOARD
S003	1-553-856-00	SWITCH, KEY BOARD
S004	1-553-856-00	SWITCH, KEY BOARD
S005	1-553-856-00	SWITCH, KEY BOARD
S006	1-553-856-00	SWITCH, KEY BOARD
S007	1-553-856-00	SWITCH, KEY BOARD
S008	1-553-856-00	SWITCH, KEY BOARD
S009	1-553-856-00	SWITCH, KEY BOARD
S010	1-553-856-00	SWITCH, KEY BOARD
S011	1-553-856-00	SWITCH, KEY BOARD
S012	1-553-856-00	SWITCH, KEY BOARD
S013	1-553-856-00	SWITCH, KEY BOARD
S101	1-553-946-00	SWITCH, PUSH (4 KEY)
S102	1-516-778-XX	(US,Canadian,AEP,UK)...SWITCH, SLIDE
S402	1-516-778-XX	(US,Canadian,E)........SWITCH, SLIDE
S402	1-552-819-00	(AEP,UK)...............SWITCH, SLIDE
S601	1-553-944-00	SWITCH, PUSH (2 KEY)
S602	1-553-945-00	SWITCH, PUSH (3 KEY)
S651	1-553-883-11	SWITCH, SLIDE
S801	1-552-532-00	SWITCH, PUSH
S802	1-552-532-00	SWITCH, PUSH
S803	1-552-532-00	SWITCH, PUSH
S804	1-553-869-00	SWITCH, PUSH
S901	⚠ 1-553-318-00	(AEP,UK,E).....SWITCH, PUSH (AC POWER)
S901	⚠ 1-553-319-00	(US,Canadian)..SWITCH, PUSH (AC POWER)
T401	1-464-110-00	OSCILLATOR UNIT, BIAS
XT101	1-527-784-00	OSCILLATOR, CRYSTAL

NOTE:
- Items with no part number and no description are not stocked because they are seldom required for routine service.
- Items marked " ♠ " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Due to standardization, parts with part numbers (Δ-ΔΔΔ-ΔΔΔ-XX or Δ-ΔΔΔΔ-ΔΔΔ-X) may be different from those used in the set.

CAPACITORS:
- All capacitors are in μF. Common capacitors are omitted. Refer to the following lists for their part numbers. MF:μF, PF:μμF.

RESISTORS
- All resistors are in ohms. Common 1/4W, 1/8W and 1/16W carbon resistors are omitted. Refer to the following lists for their part numbers.
- F : nonflammable

COILS
- MMH : mH, UH : μH

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

Les composants identifiés par une trame et une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

SEMICONDUCTORS
In each case, U : μ, for example:
UA···: μA···, UPA···: μPA···, UPC···: μPC, UPD···: μPD···

ELECTROLYTIC CAPACITORS

	RATING				→ : Use the high voltage rated one.	
CAP. (μF)	6.3 VOLT.	10 VOLT.	16 VOLT.	25 VOLT.	35 VOLT.	50 VOLT.
	PART No.	PART No.	PART No.	PART No.	PART No.	PART No.
0.47					→	1-121-726-00
1.0					→	1-121-391-00
2.2					→	1-121-450-00
3.3	→	→	→	1-121-392-00	→	1-121-393-00
4.7	→	→	→	1-121-395-00	→	1-121-396-00
10	→	→	1-121-651-00	1-121-398-00	→	1-121-738-00
22	→	→	1-121-479-00	1-121-480-00	1-121-662-00	1-121-152-00
33	→	→	1-121-403-00	1-121-404-00	1-121-652-00	1-121-405-00
47	→	1-121-352-00	1-121-409-00	1-121-410-00	1-121-653-00	1-121-411-00
100	→	1-121-414-00	1-121-415-00	1-121-416-00	1-121-357-00	1-121-417-00
220	1-121-419-00	1-121-420-00	1-121-421-00	1-121-422-00	1-121-261-00	1-121-423-00
330	1-121-751-00	1-121-805-00	1-121-521-00	1-121-654-00	1-121-655-00	1-121-656-00
470	1-121-424-00	1-121-425-00	1-121-426-00	1-121-733-00	1-121-361-00	1-121-810-00
1000	–	1-121-736-00	1-121-245-00	1-121-657-00	1-121-388-00	1-123-061-00
2200	1-121-658-00	1-121-659-00	1-121-660-00	1-123-067-00	1-121-984-00	–
3300	1-121-661-00	1-123-075-00	1-123-071-00	–	–	–

CAP. (μF)	100 VOLT.	160 VOLT.	250 VOLT.	350 VOLT.
	PART No.	PART No.	PART No.	PART No.
0.47	–	–	–	–
1.0	1-123-249-00	1-123-252-00	1-123-003-00	1-121-168-00
2.2	1-123-250-00	1-123-026-00		1-123-028-00
3.3	1-121-995-00		1-123-004-00	1-123-006-00
4.7	1-123-255-00	1-121-246-00	1-121-759-00	1-123-007-00
10	1-121-126-00	1-121-999-00	1-123-254-00	1-123-008-00
22	1-121-996-00	1-123-253-00	1-123-005-00	1-123-022-00
33	1-121-997-00	1-121-757-00	–	–
47	1-123-251-00	1-121-919-00	–	–
100	1-123-084-00	–		–

CERAMIC CAPACITORS

			RATING				
CAP. (pF)	50 VOLT.	CAP. (pF)	50 VOLT.	CAP. (pF)	50 VOLT.	CAP. (μF)	50 VOLT.
	PART No.		PART No.		PART No.		PART No.
0.5	1-101-837-00	22	1-102-959-00	150	1-101-361-00	0.001	1-102-074-00
0.75	1-101-586-00	24	1-102-960-00	160	1-101-367-00	0.0012	1-102-118-00
1.0	1-102-934-00	27	1-102-961-00	180	1-102-976-00	0.0015	1-102-119-00
1.5	1-101-576-00	30	1-102-962-00	200	1-102-977-00	0.0018	1-102-120-00
2.0	1-102-935-00	33	1-102-963-00	220	1-102-978-00	0.0022	1-102-121-00
3	1-102-936-00	36	1-102-964-00	240	1-102-979-00	0.0027	1-102-122-00
4	1-102-937-00	39	1-102-965-00	270	1-102-980-00	0.0033	1-102-123-00
5	1-102-942-00	43	1-102-966-00	300	1-102-981-00	0.0039	1-102-124-00
6	1-102-943-00	47	1-101-880-00	330	1-102-820-00	0.0047	1-102-125-00
7	1-102-944-00	51	1-101-882-00	360	1-102-821-00	0.0056	1-102-126-00
8	1-102-945-00	56	1-101-884-00	390	1-102-822-00	0.0068	1-102-127-00
9	1-102-946-00	62	1-101-886-00	430	1-102-823-00	0.0082	1-102-128-00
10	1-102-947-00	68	1-101-888-00	470	1-102-824-00	0.01	1-102-129-00
11	1-102-948-00	75	1-101-890-00	510	1-101-059-00	0.022	1-101-005-00
12	1-102-949-00	82	1-102-971-00	560	1-102-115-00	0.047	1-101-006-00
13	1-102-950-00	91	1-102-972-00	680	1-102-116-00		
15	1-102-951-00	100	1-102-973-00	820	1-102-117-00		
16	1-102-952-00	110	1-102-815-00				
18	1-102-953-00	120	1-102-816-00				
20	1-102-958-00	130	1-101-081-00				

0.001μF = 1,000pF

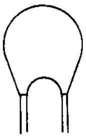
CERAMIC (SEMICONDUCTOR) CAPACITORS

		RATING		→ : Use the high voltage rated one.	
CAP. (μF)	25 VOLT.	50 VOLT.	CAP. (μF)	25 VOLT.	50 VOLT.
	PART No.	PART No.		PART No.	PART No.
0.001	→	1-161-039-00	0.018	1-161-016-00	1-161-054-00
0.0012	→	1-161-040-00	0.022	1-161-017-00	1-161-055-00
0.0015		1-161-041-00	0.027	1-161-018-00	1-161-056-00
0.0018		1-161-042-00	0.033	1-161-019-00	1-161-057-00
0.0022		1-161-043-00	0.039	1-161-010-00	1-161-058-00
0.0027	→	1-161-044-00	0.047	1-161-021-00	1-161-059-00
0.0033	→	1-161-045-00	0.056	→	1-161-060-00
0.0039	→	1-161-046-00	0.068	→	1-161-061-00
0.0047	→	1-161-047-00	0.082	1-161-024-00	1-161-062-00
0.0056	→	1-161-048-00	0.1	1-161-025-00	1-161-063-00
0.0068	→	1-161-049-00			
0.0082	1-161-012-00	1-161-050-00			
0.01	1-161-013-00	1-161-051-00			
0.012	→	1-161-052-00			
0.015	1-161-015-00	1-161-053-00			

MYLAR CAPACITORS

CAP. (μF)	RATING 50 VOLT. PART No.	100 VOLT. PART No.	200 VOLT. PART No.	CAP. (μF)	50 VOLT. PART No.	100 VOLT. PART No.	200 VOLT. PART No.	CAP. (μF)	50 VOLT. PART No.	100 VOLT. PART No.	200 VOLT. PART No.
0.001	1-108-227-00	1-108-365-00	1-108-409-00	0.01	1-108-239-00	1-108-377-00	1-108-421-00	0.1	1-108-251-00	1-108-389-00	1-108-433-00
0.0012	1-108-351-00	1-108-366-00	1-108-410-00	0.012	1-108-357-00	1-108-378-00	1-108-422-00	0.12	1-108-363-00	1-108-390-00	1-108-434-00
0.0015	1-108-228-00	1-108-367-00	1-108-411-00	0.015	1-108-240-00	1-108-379-00	1-108-423-00	0.15	1-108-252-00	1-108-391-00	1-108-435-00
0.0018	1-108-352-00	1-108-368-00	1-108-412-00	0.018	1-108-358-00	1-108-380-00	1-108-424-00	0.18	1-108-364-00	1-108-392-00	1-108-436-00
0.0022	1-108-230-00	1-108-369-00	1-108-413-00	0.022	1-108-242-00	1-108-381-00	1-108-425-00	0.22	1-108-254-00	1-108-393-00	1-108-437-00
0.0027	1-108-353-00	1-108-370-00	1-108-414-00	0.027	1-108-359-00	1-108-382-00	1-108-426-00	0.27	1-108-854-00		–
0.0033	1-108-232-00	1-108-371-00	1-108-415-00	0.033	1-108-244-00	1-108-383-00	1-108-427-00	0.33	1-108-855-00		–
0.0039	1-108-354-00	1-108-372-00	1-108-416-00	0.039	1-108-360-00	1-108-384-00	1-108-428-00	0.39	1-108-856-00		–
0.0047	1-108-234-00	1-108-373-00	1-108-417-00	0.047	1-108-246-00	1-108-385-00	1-108-429-00	0.47	1-108-857-00		–
0.0056	1-108-355-00	1-108-374-00	1-108-418-00	0.056	1-108-361-00	1-108-386-00	1-108-430-00				
0.0068	1-108-237-00	1-108-375-00	1-108-419-00	0.068	1-108-249-00	1-108-387-00	1-108-431-00				
0.0082	1-108-356-00	1-108-376-00	1-108-420-00	0.082	1-108-362-00	1-108-388-00	1-108-432-00				

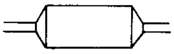
TANTALUM CAPACITORS



RATING →: Use the high voltage rated one.

CAP. (μF)	3.15 VOLT. PART No.	6.3 VOLT. PART No.	10 VOLT. PART No.	16 VOLT. PART No.	20 VOLT. PART No.	25 VOLT. PART No.	35 VOLT. PART No.
0.01					→	→	1-131-396-00
0.015						→	1-131-397-00
0.022						→	1-131-398-00
0.033						→	1-131-399-00
0.047						→	1-131-400-00
0.068					→	→	1-131-401-00
0.1					→	→	1-131-402-00
0.15					→	→	1-131-403-00
0.22					→	→	1-131-404-00
0.33					→	1-131-409-00	1-131-405-00
0.47	–	–	–	–	1-131-412-00	→	1-131-406-00
0.68	–	–	–	1-131-415-00	→	1-131-410-00	1-131-407-00
1.0	–	–	1-131-418-00	–	1-131-413-00	→	1-131-408-00
1.5	–	1-131-421-00	–	1-131-416-00	→	1-131-411-00	1-131-348-00
2.2	1-131-424-00	–	1-131-419-00	–	1-131-414-00	1-131-355-00	1-131-349-00
3.3	–	1-131-422-00	–	1-131-417-00	1-131-362-00	1-131-356-00	1-131-350-00
4.7	1-131-425-00	–	1-131-420-00	1-131-369-00	1-131-363-00	1-131-357-00	1-131-351-00
6.8	–	1-131-423-00	1-131-376-00	1-131-370-00	1-131-364-00	1-131-358-00	1-131-352-00
10	1-131-426-00	1-131-383-00	1-131-377-00	1-131-371-00	1-131-365-00	1-131-359-00	1-131-353-00
15	1-131-390-00	1-131-384-00	1-131-378-00	1-131-372-00	1-131-366-00	1-131-360-00	–
22	1-131-391-00	1-131-385-00	1-131-379-00	1-131-373-00	1-131-367-00		
33	1-131-392-00	1-131-386-00	1-131-380-00	1-131-374-00			
47	1-131-393-00	1-131-387-00	1-131-381-00	–			
68	1-131-394-00	1-131-388-00	–	–			
100	1-131-395-00	–	–	–			

TANTALUM CAPACITORS



CAP. (μF)	RATING 3 VOLT. PART No.	6.3 VOLT. PART No.	10 VOLT. PART No.	16 VOLT. PART No.	20 VOLT. PART No.	35 VOLT. PART No.
0.033						1-131-273-00
0.047						1-131-274-00
0.068						1-131-275-00
0.1						1-131-276-00
0.15						1-131-277-00
0.22				–	1-131-262-00	1-131-278-00
0.33				–	1-131-263-00	1-131-279-00
0.47			1-131-169-00	–	1-131-264-00	1-131-280-00
0.68			–	1-131-258-00	1-131-265-00	1-131-281-00
1.0			1-131-254-00	–	1-131-266-00	1-131-282-00
1.5		1-131-250-00	–	–	1-131-267-00	1-131-283-00
2.2		–	–	1-131-259-00	1-131-268-00	1-131-284-00
3.3			1-131-255-00	–	1-131-269-00	–
4.7		1-131-251-00	1-131-171-00	–	1-131-270-00	–
6.8		–		1-131-260-00	1-131-271-00	–
10	–	–	1-131-256-00	–	1-131-272-00	–
15	–	1-131-252-00	–	1-131-261-00		
22		–	1-131-257-00	–		
33	1-131-176-00	1-131-253-00	1-131-173-00	–		
47	1-131-288-00	1-131-174-00	–	–		
100	1-131-177-00					

1/4 WATT CARBON RESISTORS

Ω	*Part No.*	Ω	*Part No.*	Ω	*Part No.*	Ω	*Part No.*	Ω	*Part No.*	Ω	*Part No.*	Ω	*Part No.*
1.0	1-246-401-00	10	1-246-425-00	100	1-246-449-00	1.0k	1-246-473-00	10k	1-246-497-00	100k	1-246-521-00	1.0M	1-246-545-00
1.1	1-246-402-00	11	1-246-426-00	110	1-246-450-00	1.1k	1-246-474-00	11k	1-246-498-00	110k	1-246-522-00	1.1M	1-210-814-00
1.2	1-246-403-00	12	1-246-427-00	120	1-246-451-00	1.2k	1-246-475-00	12k	1-246-499-00	120k	1-246-523-00	1.2M	1-210-815-00
1.3	1-246-404-00	13	1-246-428-00	130	1-246-452-00	1.3k	1-246-476-00	13k	1-246-500-00	130k	1-246-524-00	1.3M	1-210-816-00
1.5	1-246-405-00	15	1-246-429-00	150	1-246-453-00	1.5k	1-246-477-00	15k	1-246-501-00	150k	1-246-525-00	1.5M	1-210-817-00
1.6	1-246-406-00	16	1-246-430-00	160	1-246-454-00	1.6k	1-246-478-00	16k	1-246-502-00	160k	1-246-526-00	1.6M	1-210-818-00
1.8	1-246-407-00	18	1-246-431-00	180	1-246-455-00	1.8k	1-246-479-00	18k	1-246-503-00	180k	1-246-527-00	1.8M	1-210-819-00
2.0	1-246-408-00	20	1-246-432-00	200	1-246-456-00	2.0k	1-246-480-00	20k	1-246-504-00	200k	1-246-528-00	2.0M	1-210-820-00
2.2	1-246-409-00	22	1-246-433-00	220	1-246-457-00	2.2k	1-246-481-00	22k	1-246-505-00	220k	1-246-529-00	2.2M	1-210-821-00
2.4	1-246-410-00	24	1-246-434-00	240	1-246-458-00	2.4k	1-246-482-00	24k	1-246-506-00	240k	1-246-530-00	2.4M	1-244-754-00
2.7	1-246-411-00	27	1-246-435-00	270	1-246-459-00	2.7k	1-246-483-00	27k	1-246-507-00	270k	1-246-531-00	2.7M	1-244-755-00
3.0	1-246-412-00	30	1-246-436-00	300	1-246-460-00	3.0k	1-246-484-00	30k	1-246-508-00	300k	1-246-532-00	3.0M	1-244-756-00
3.3	1-246-413-00	33	1-246-437-00	330	1-246-461-00	3.3k	1-246-485-00	33k	1-246-509-00	330k	1-246-533-00	3.3M	1-244-757-00
3.6	1-246-414-00	36	1-246-438-00	360	1-246-462-00	3.6k	1-246-486-00	36k	1-246-510-00	360k	1-246-534-00	3.6M	1-244-758-00
3.9	1-246-415-00	39	1-246-439-00	390	1-246-463-00	3.9k	1-246-487-00	39k	1-246-511-00	390k	1-246-535-00	3.9M	1-244-759-00
4.3	1-246-416-00	43	1-246-440-00	430	1-246-464-00	4.3k	1-246-488-00	43k	1-246-512-00	430k	1-246-536-00	4.3M	1-244-760-00
4.7	1-246-417-00	47	1-246-441-00	470	1-246-465-00	4.7k	1-246-489-00	47k	1-246-513-00	470k	1-246-537-00	4.7M	1-244-761-00
5.1	1-246-418-00	51	1-246-442-00	510	1-246-466-00	5.1k	1-246-490-00	51k	1-246-514-00	510k	1-246-538-00	5.1M	1-244-762-00
5.6	1-246-419-00	56	1-246-443-00	560	1-246-467-00	5.6k	1-246-491-00	56k	1-246-515-00	560k	1-246-539-00		
6.2	1-246-420-00	62	1-246-444-00	620	1-246-468-00	6.2k	1-246-492-00	62k	1-246-516-00	620k	1-246-540-00		
6.8	1-246-421-00	68	1-246-445-00	680	1-246-469-00	6.8k	1-246-493-00	68k	1-246-517-00	680k	1-246-541-00		
7.5	1-246-422-00	75	1-246-446-00	750	1-246-470-00	7.5k	1-246-494-00	75k	1-246-518-00	750k	1-246-542-00		
8.2	1-246-423-00	82	1-246-447-00	820	1-246-471-00	8.2k	1-246-495-00	82k	1-246-519-00	820k	1-246-543-00		
9.1	1-246-424-00	91	1-246-448-00	910	1-246-472-00	9.1k	1-246-496-00	91k	1-246-520-00	910k	1-246-544-00		

HARDWARE NOMENCLATURE

Screw: – P 3 x 10

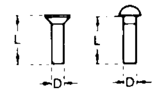
L: Length in mm

D: Diameter in mm

Type of head

Indicated slotted-head only.

Unless otherwise indicated, it means cross-recessed head (Phillips type).



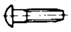
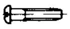
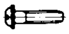
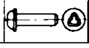
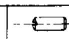
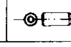
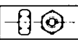
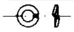
Reference Designation	Shape	Description	Remarks
		SCREWS	
P		pan-head screw	binding-head (B) screw for replacement
PWH		pan-head screw with washer face	binding-head (B) screw and flat washer for replacement
PS PSP		pan-head screw with spring washer	binding-head (B) screw and spring washer for replacement
PSW PSPW		pan-head screw with spring and flat washers	binding-head (B) screw and spring and flat washers for replacement
R		round-head screw	binding-head (B) screw for replacement
K		flat-countersunk-head screw	
RK		oval-countersunk-head screw	
B		binding-head screw	
T		truss-head screw	binding-head (B) screw for replacement
F		flat-fillister-head screw	
RF		fillister-head screw	
BV		brazier-head screw	

Nut, Washer, Retaining ring:

N 3

Diameter of usable screw or shaft

Reference designation

Reference Designation	Shape	Description	Remarks
		SELF-TAPPING SCREWS	
TA		self-tapping screw	ex: TA, P 3 x 10
PTP		pan-head self-tapping screw	binding-head self-tapping (TA, B) screw for replacement
PTPWH		pan-head self-tapping screw with washer face	binding-head self tapping (TA, B) screw and flat washer for replacement
PTTWH		pan-head thread-rolling screw with washer face	binding-head (B) screw and flat washer for replacement
		SET SCREWS	
SC		set screw	
SC		hexagon-socket set screw	ex: SC 2.6 x 4, hexagon socket
		NUT	
N		nut	
		WASHERS	
W		flat washer	
SW		spring washer	
LW		internal-tooth lock washer	ex: LW3, internal
LW		external-tooth lock washer	ex: LW3, external
		RETAINING RINGS	
E		retaining ring	
G		grip-type retaining ring	